

JPRS 76723

30 October 1980

China Report

AGRICULTURE

No. 108



FOREIGN BROADCAST INFORMATION SERVICE

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CHINA REPORT

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I. GENERAL INFORMATION

ACCELERATION OF STATE FARM ECONOMIC DEVELOPMENT URGED

Beijing ZHONGGUO NONGKEN [CHINESE AGRICULTURAL RECLAMATION] in Chinese No 1, 24 Jan 80 pp 2-3

[Article: "Struggle To Achieve an Overall Improvement in the State Farm Economy"]

[Text] The broad masses of laborers on the farming front, their hearts filled with exultation, enter the decade of the 1980's. A look at the year just past shows that under the encouragement of the spirit of the Third Plenary Session of the 11th Party Central Committee and the Second Session of the Fifth National People's Congress, the state farms have shifted work emphasis to economic construction, output has continued to climb, and outstanding improvements have been made in management. A comparison of 1979 with 1978 shows a 10 percent increase in the estimated total grain output, a 6 percent increase in cotton, a 2 percent increase in dry rubber, and an 8 percent increase in industrial output value. Profit units for farming enterprises nationwide have increased 10 percent over last year. These accomplishments have been made during the process of the launching of in-depth discussions of experience being the sole criterion for testing truth, a profound criticism of the extreme leftist line of Lin Biao and the "gang of four," the liberation of thought, the implementation of various policies of the party, and the readjustment of the management of enterprises. It is also the result of the arduous struggle and hard work of the broad masses of cadres and the masses in implementing, "Central Committee Decisions on Several Problems Pertaining to Acceleration of Agricultural Development." For this we express our heartfelt congratulations and convey our cordial solicitude to comrades in every trade and every industry struggling in the farming system.

While reviewing our accomplishments, it is also necessary to take a clear-sighted look at the problems and new conflicts that will be encountered in the forward march of our work. In the case of levels of output, for example, the situation of low and inconsistent yields per unit of area on farms has still not changed. Per unit yields of grain for quite a few provincial farms are lower than the average for the province. In the area of management, development of farms is very unbalanced. Profits for some farm units amount to only 55 percent of the total figure for the farm; 45 percent of the units show losses, and units showing losses still depend on the state for

supplementary subsidization. State increases in prices paid for agricultural products is the principal factor in the increased income of state farms. The decision by the state to adjust wages for some workers, to institute increased prices and subsidies for sideline products, and to provide labor insurance to farm workers has doubtlessly given impetus to the arousal of worker enthusiasm, but this has also increased the costs of agricultural enterprises. This raises an important mission for struggle, namely the need to unite as one, to be of one heart and one mind, to rely on the broad masses, to work hard for the prosperity of the country, to overcome difficulties, and to struggle to achieve an overall improvement in the state farm economy.

The year 1980 marks the second year of implementation of the policy of readjustment, restructuring, consolidation, and improvement, the core of which is the need to do a good job of readjustment. Only by doing a good job of readjustment can the entire economy move along the track of planned, proportional, high-speed development. Within the next 2 or 3 years, our farming battle line must undergo readjustment, development of production, and the opening of all avenues of financial resources to achieve a situation in which an absolute majority of farms and industrial enterprises rather than just farms and industrial enterprises as a whole can show profits and provide the state with more agricultural and livestock products and industrial goods than is presently the case. Once profits have increased, we can use our own profits to expand further production in a "snowball" effect to achieve even better economic results and to make a greater contribution to the state. Experience has demonstrated that the old way of "eating from the common pot" that endured for so long whereby "earnings large or small were handed over to higher authority and losses large or small brought a request for handouts from higher authority" can continue no longer. Every echelon of leadership in the farming system must clearly see, first of all, the urgency of this problem. Every farm and industrial enterprise that is now still sustaining losses faces the great and difficult problem of its continued existence. Any thought of continued reliance on the state for subsidies to get by instead of actively using the brain to think of ways to do things and find a way out of problems, or an attitude of continuing in the same old rut while hoping for a rapid change in one's own situation is dangerous.

Both the history of the development of farming and current experience tell us that as a result of the destruction of the ultra-leftist line of Lin Biao and the "gang of four," as well as our own unclear understanding of the economic laws of socialism, many shortcomings exist in the guiding ideology, system, and methods of economic work that have not allowed full play of the superiority of the state farm system of ownership by all the country. Now many leading comrades on farms and in farm management units have liberated their thoughts, destroyed some forbidden zones, and have led the broad masses of workers to reform some of the rules and regulations that have fettered development of productivity; they have overcome the evil of eating from the common pot and egalitarianism, to varying degrees, and have made great improvements in the contentances of enterprises. Experiences of this kind should be well summarized. Experience as the sole criterion for testing truth and the seeking of truth from facts is our ideological line. We have to be pragmatic and, through investigation and study, take those methods that have been found in practice to be beneficial in arousing the enthusiasm of the workers and of enterprises

to promote the development of production, concentrate them, and adhere to them. We must proceed from a foundation of discussions about the criteria for truth combined with the realities of state farms to further define the goals of socialist production so that economic activities will have a clear guiding idea, so that farming enterprises will produce better to satisfy the regular increases in material and cultural needs of the entire society, will reduce blind action, and will make fewer detours. We must clearly recognize that some present rules and regulations impede enthusiasm in enterprises and among workers, and fetter the development of productivity. These are still weak links in the management of enterprises. During 1980, we must continue to liberate thoughts and summarize experiences and go on to resolutely overcome "eating from the same pot" and egalitarianism, to reform irrational rules and regulations, properly handle the relationship among the state, enterprises, and individuals, to fully arouse the enthusiasm of enterprises and of workers, and make good progress in improving the level of management in enterprises.

The natural resources of state farms are extremely abundant; there is a large labor force; and there is a vast untapped potential for production. At the present time, some farms are operated in a unitary way and still do not make full use of local resources, or else they violate natural laws in consequence of poor direction given by their leadership, thereby destroying natural resources. This lesson must be borne in mind. We must do things strictly in accordance with natural laws, set economic programs through the adaptation of methods to local situations, and dare to institute readjustments in irrational production patterns. We must use local natural resources in the most rational way possible, broaden the avenues of production, use every manner of means to increase goods for the country, and increase the income of farms. We must establish a new ecological system through our own work that combines agriculture, forestry, and livestock raising to achieve enduring consistently high yields. The forestry industry and the livestock raising industry are two weak links in the building of agricultural production. We must resolve to adopt measures that will enrich and strengthen them. During the period of readjustment, we must concentrate our strength to do a good job of cultivating existing land, take good care of existing rubber, and restructure existing industrial enterprises. We must use limited capital and material resources to change the conditions for production and to improve technical equipment in order to create a higher labor productivity rate. We must intensify scientific research activities, summarize advanced experiences, expand the application of advanced techniques, and promote the development of production. As regards the conditions of agricultural production, water conservancy projects must be given attention, and serious attention must also be given to biological measures in order to obtain the greatest economic benefits from the least possible investment of capital.

In the management of state farms, quite a few conflicts continue to exist in relations with external sectors and with irrational policies. During the 10 years of national upheaval when economic problems were faced and when numerous problems arose that should have been promptly solved, they were not solved for the time being whether because they were not fully understood or because of certain material or managerial difficulties. This should be

clearly explained to the broad masses of workers. That these problems have not been solved should not be allowed to impair fulfillment of various tasks, and much less should passive waiting be allowed. We must be on the watch for ways to tap unused potential on farms, using it as a foothold for doing our own work well. Only in this way may difficulties be overcome and greater advances be made.

The Party Central Committee has decided that state farms should establish joint agricultural, industrial, and commercial enterprises with all possible speed, meaning that they should engage in agriculture, in industry, and in commerce. Right now test sites are in being everywhere as a means of gaining experiences for gradual expansion. Leadership comrades at all echelons in farm management departments and farms must become experts not only in the management of farms and industries, but must also study how to do business. This will require constant understanding of changes in supply and marketing and prices prevailing in the marketplace so that one's own products will better suit the needs of the people and will enjoy a high reputation in the marketplace. We must also understand the situation in international trade, export more goods, be competitive in international markets, and create more foreign exchange. The expansion of the scope of operations as a result of the operation of joint agricultural, industrial, and commercial enterprises will require that we give increased attention to the improvement of management and administration, constantly improve the degree of specialization, do a good job of economic accounting, strive to reduce costs, and increase profits.

Leadership comrades on every echelon of farm management departments and farms must give full play to democracy, follow the mass line, and wholeheartedly rely on the broad masses of workers to run the farms and the industrial enterprises. They must show concern for the livelihood of the masses and take effective measures for an active solution to problems existing in the lives of the masses, particularly problems of a place to live. In our appraisal of how well an enterprise is run, it is not enough simply to look at whether production quotas have been fulfilled or what the contribution to the state has been, but it is necessary as well to look at how well the livelihoods of the workers have been improved. If attention is given to the peoples' livelihoods, production will inevitably advance.

The more economic work done, the greater the fine tuning; the more action, the more lively. Special attention must be given the weak links. Attention has to be given every losing unit one by one, and every loss item must be given attention one by one and completely until results are obtained. Leadership comrades on every echelon of farm management units and farms must learn how to manage and really become experts on agricultural economic work to give full play to their own ability and wisdom on this new long march, and to contribute their own strength to the construction of the four modernizations.

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CSO: 4007

FISCAL REFORM IN FARM RECLAMATION ENTERPRISES DISCUSSED

Beijing ZHONGGUO NONGKEN [CHINESE AGRICULTURAL RECLAMATION] in Chinese No 1, 24 Jan 80 pp 14-15

[Article by Shi Weigang [2457 4850 0474]: "A Major Reform in the Fiscal System of Farm Reclamation Enterprises"]

[Text] In 1979, following state approval, farm reclamation enterprises instituted a system of fiscal responsibility of "independent accounting, sole responsibility for profits and losses, retention of profits, and no subsidization of losses." This constituted a major reform in the fiscal management system of "separate tracks for receipts and disbursements" whereby profits were tendered to higher authority and requests for subsidization of losses was made of higher authority. The institution of this system will make possible better use of economic laws and will give play to economic methods, thereby increasing the economic authority that enterprises should have, and increasing their economic responsibility. It also holds extremely important significance for arousing the enthusiasm and initiative of enterprises, for unearthing untapped potential from within, for improving administration and management, and for accelerating the development of construction for production by farm reclamation enterprises.

The system of fiscal responsibility has numerous advantages over the former method, foremost of which is that in being solely responsible for profits and losses, enterprises have the autonomy they should have. If an enterprise is well operated, profits are retained by the enterprise for distribution as it sees fit; if it is operated badly and sustains losses, the enterprise itself is responsible for solving the problem and the state will not subsidize it. This closely links success in management with economic benefits.

As a result of the expansion in the autonomy of enterprises, regulations permit enterprises authority to use their own profits or cash surpluses resulting from fulfillment of contracts for the development of production, for improvements in production conditions, to upgrade technology, or to go into new kinds of production. The change in the former system whereby all construction expenditures for production had to be arranged by the state has obviated the drawbacks of "unified receipts and unified expenditures," and has been helpful as well in overcoming the mentality of "wait, depend on, and ask for."

Secondly, the profits or cash surpluses resulting from fulfillment of contracts that enterprises retain may be used to improve collective welfare services or used to issue rewards to employees to give better expression to the principle of from each according to his work. When the enterprise's profits are large, collective welfare services will be run better, and the individual income of employees can increase as production grows. Disparity in distribution is permitted among enterprises, and disparities in the incomes of individual employees are also permitted in a true implementation of the greater the work the greater the return and the less the work the less the return.

Thirdly, use of this method advances the implementation of democratic management and strengthens the supervision of the masses. Since how well an enterprise is managed is intimately linked to the personal welfare of the employees, employees are more intensely concerned with the results of the operation of the enterprise. In matters such as the implementation of national policies and laws, measures to increase production while practicing economy, construction for production, welfare benefits, and labor protection, the broad masses of workers can take the initiative to look into, and participate in management and supervision. These things will become conscious acts of the masses.

To summarize the above, I feel that the system of fiscal responsibility that is currently being promoted holds numerous advantages for improvements in the administration and management of farmland reclamation enterprises, and for increasing the growth of production. Naturally, some problems may be expected in the process of carrying out the system of fiscal responsibility as a result of the great proliferation of items produced by farmland reclamation enterprises, differences in prices of goods and the existence of very great differences in the profit levels from one enterprise to another. These differences result not only from administrative and management factors within the enterprises themselves but also, to a large extent, from objective reasons. Institution of a system of fiscal responsibility permits differences among enterprises and permits some enterprises that are well run to become prosperous ahead of the others, but in terms of agricultural production, the differences produced are by no means entirely the result of the way the enterprise is run and how well the employees work. In a year of bumper harvests when the weather is favorable, output is high and costs are low, so profits will be large even though the workers did not necessarily work any harder. In a year of calamities, output is low and costs are high, so profits are less or there may even be losses. In order to combat the calamities, it is frequently necessary to work harder. For differences of this kind, a balancing must be done. So the system stipulates the establishment of a reserve fund that subsidizes the years of want from the years of plenty. Depending on the type, enterprises currently provide for three different ways of doing this: retention of profits, tendering to higher authority by contract, and subsidies paid at fixed periods of time. Production teams have instituted the "fixed contract reward" system by which they may set aside or retain funds from excess earnings after they have fulfilled or overfulfilled fixed contract quotas. This system has aroused the enthusiasm and initiative

of production teams and assured fulfillment of the quotas of enterprises. Along with this is adherence to the principle of from each according to his work with provision for awards to individuals so that the relations among the state, the enterprises, and the individuals will be handled well. It is also necessary to do a good job of ideological and political work. We are currently emphasizing use of economic methods to manage the economy, but this has to be supplemented with ideological and political work. We must achieve a combination, so that these activities will develop better and be done more dynamically.

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CSO: 4007

FARMLAND, RECLAMATION, STATE FARM PIONEERING DISCUSSED

Beijing ZHONGGUO NONGKEN [CHINESE AGRICULTURAL RECLAMATION] in Chinese No 1,
24 Jan 80 pp 6-8

[Article from State Farm Bureau Policy Study Office: "Loving Care and Gigantic Development"]

[Text] Great developments have taken place as the result of more than 30 years of arduous pioneering efforts on our country's state farms. Agriculture that is owned by all of the people has become a major force in the socialist economy and has come to play an ever larger role in the new long march toward bringing about the four modernizations. The accomplishments of farm reclamation endeavors reflect the painstaking efforts of Premier Zhou. The guidance to state farm endeavors given by the premier encouraged our gigantic efforts to move forward; and the revered figure of the premier will forever stand tall and bright in the hearts of 5 million farm reclamation warriors.

Need To Unite With People of All Nationalities To Do a Good Job of Frontier Construction

The ranks of our nation's farmland reclamation corps have built on and strengthened by People's Liberation Army units transferred to civilian work. In compliance with Chairman Mao's 1947 instructions to "build stable bases in the Northeast," China's first state farm was established in Heilongjiang Province. Acting on changing developments throughout the country, in the early 1950's Chairman Mao ordered that a part of the People's Liberation Army participate in construction for production. These units were transferred to civilian assignments in border regions to open up land for production, and to develop wastelands. They were at once a production corps and a work corps as well as a combat corps to become a major force for the construction of the frontier and to protect the frontier. They also made a splendid contribution to the establishment of China's land reclamation endeavors. Premier Zhou was extremely concerned about farmland reclamation endeavors, and at the time of the transfer of the military units to civilian tasks, he earnestly instructed everyone of the need to carry forward and develop the fine traditions of the People's Liberation Army, and the definite need to unite with people of all nationalities to do a good job of construction on the frontiers. By way of strengthening the leadership of land reclamation

endeavors, the State Council formally established the State Farm Bureau in 1956, and reclamation areas in Xinjiang, Heilongjiang, Guangdong, Guangxi, Yunnan, and Fujian became enterprises under the direct control of the State Farm Bureau. From this time forward, farmland reclamation endeavors developed very rapidly. By 1965, the area of cultivated land amounted to more than 47 million mu, a 2.1-fold increase over 1957. Total grain output amounted to 7.1 billion jin for a 5.5-fold increase. Total cotton output amounted to more than 1.4 million dan for a 4.4-fold increase. The area planted to natural rubber amounted to more than 2.3 million mu for a 1.2-fold increase. Live-stock numbered more than 10 million head for a 5.2-fold increase. Everywhere throughout the land, particularly in frontier regions, state farms spread like stars in the sky to play a major role in the development of the economy and culture of frontier areas.

Following the 1958 march into the Great Northern Wilderness of 100,000 military officers and men who had transferred to civilian occupations, great development took place in the Heilongjiang Reclamation area. Following establishment in 1963 of the Northeast Reclamation Bureau, Premier Zhou himself heard reports from leadership comrades in the reclamation area. He encouraged everyone by saying "the tops of your heads toward the sky and your feet trodding the barren plain, you are making a contribution to the opening and construction of the Great Northern Wilderness." The premier asked that the troops who were assigned to open up the wasteland become great models for socialist and mechanized agriculture with consistently high yields. Acting on the instructions of Premier Zhou, the broad masses of workers in the reclamation area courageously practiced and diligently summarized experiences in production, improvement of management, and increased output. By 1966, the area of cultivated land in this reclamation area already amounted to more than 8 million mu. Total grain output amounted to 2.8 billion jin; commodity grain sent to higher authority totaled 1.6 billion jin; the commodity rate was 57 percent for a profit.

The original Xinjiang production and construction army was a composite unit consisting of industrial, agricultural, commercial, and teaching troops for the operation of large-scale integrated agricultural, forestry, livestock raising, sideline occupation and fishery enterprises with independently operated farms and livestock farms, processing industries for agricultural and livestock products, farm machinery repair and manufacturing industries and other industrial and mining industries, construction industries, communication and transportation industries, commercial industries, and cultural, educational, and scientific research components as well. As of 1966, the total industrial and agricultural output value of the entire army in the reclamation area totalled 1.22 billion yuan of which the output value from industry amounted to one-third that of the entire autonomous region; commodity grain sent to higher authorities amounted to 450 million jin; and profits amounted to 93 million yuan. In battles to protect the frontiers, they also played a major role. In 1965, on their return to China from a trip abroad, Premier Zhou Enlai and Vice-premier Chen Yi traveled through Xinjiang, where, mindless of fatigue and the hardships of a long journey, they stopped to inspect the Shihezi reclamation area. On seeing the fine fields of the reclamation area layed out like a chessboard, the crisscross network of irrigation

canals, the verdant forest belts, and the industrial plants standing in great numbers, Premier Zhou was overjoyed and made a very high evaluation of the work of the military unit. Premier Zhou and Vice-premier Chen Yi warmly praised the soldiers of the military unit for their spirit of self-reliance and arduous struggle, and urged them to unite with people of all races in a struggle to build a socialist Xinjiang. Upon meeting cadres of the military unit, the premier quoted the verse, "One's place of interment should be a hill covered with mulberry and catalpa trees, and in life, green mountains abound everywhere," by way of instructing everyone to put down roots in Xinjiang. On meeting intellectual youths, the premier urged them to strive to study the works of Chairman Mao and to study agricultural science and technology, offering students who had graduated jobs in constructing the frontier to become successors for communism. To the leadership comrades of the military unit, the premier said that the intellectual youths had gone to the trouble of making a very long trip and that the cadres should look after them just as old soldiers looked after new ones in concern for the growth of a new generation. Upon leaving the Shihezi reclamation area, Premier Zhou wielded the brush to write the glorious inscription, "Raise high the great red banner of Mao Zedong Thought; prepare for war in defense of the frontier; produce and construct; unify nationalities, struggle arduously, strive to reform, and advance bravely." Vice-premier Chen Yi also wrote the verse, "The Gobi menaces a new world and great waves frequently surge from across the Tianshan [a mountain range separating China from the USSR] to encourage the farmland reclamation soldiers. The guidance from Premier Zhou and Vice-premier Chen Yi did encourage the broad masses of workers in the military unit to march forward victoriously to build the frontier and to protect the frontier.

Most state farms are spread throughout the regions of brother nationalities in frontier areas. As the transferred soldiers do a good job of production and construction, they actively do good deeds for the brother nationalities and promote the unity of all nationalities. When Premier Zhou visited Xinjiang, he instructed the leadership comrades in the Xinjiang army for construction of production that they must resolutely implement the party's nationalities policies, respect the customs of brother nationalities, study the languages of brother nationalities, train cadres from among brother nationality peoples, give attention to the recruitment into the party of comrades from national minorities, and recruit minority nationality youths as workers in farms and industrial enterprises. Premier Zhou instructed the cadres of Han nationality that they must identify with the various national minorities, live in harmony with them guard against feelings of arrogance, and overcome thoughts of Han chauvinism. When he visited reclamation areas in Yunnan Province, Premier Zhou spoke to the cadres earnestly and sincerely, saying that everyone should be like a red seed that wanted to unite with the people wherever it went and to put down roots and flower among the people.

Need for Farm Construction To Be New Reclamation Areas That Combine Industry and Agriculture, the City and the Countryside

Most state farms have been reclaimed and built in the uninhabited Gobi Desert wastes, in marshlands, in saline and alkaline lands, or in hilly and mountainous

land. Just what these farms should look like and toward what direction they should face was a major problem to which Premier Zhou devoted himself. Premier Zhou pointed out that the four systems of the Northeast, petroleum, coal, forestry, and agriculture, the cities and the countryside in new style enterprises that help production and make living convenient. On his visit to the Shihezi reclamation region in Xinjiang, Premier Zhou especially emphasized that no large cities should be built, that control should be placed on population growth in Shihezi, that the focus be placed on construction for agriculture and livestock raising, and that attention be given to decreasing differences between industry and agriculture and between the cities and the countryside. Premier Zhou required that the Xinjiang Army for construction of production engage in both agriculture and industry, use profits from industry to strengthen the building of agriculture, do a good job of mechanization and capital construction of farmlands, hasten the development of agriculture, and use industry to promote agriculture.

During the 20-year period 1954 to 1974, the original Xinjiang army for construction of production used 2.8 billion yuan for investment in capital construction, of which one-half was derived from profits earned from its own industry, transportation, construction, and commerce. When Premier Zhou visited the army in 1965, he approved the army's not having turned its profits over to the state, using the "snowball" effect instead to continue to develop the building of industrial and agricultural production.

Many of our state farms are following the request of Premier Zhou to build small cities and towns characterized by combining the city and the countryside, and industry and agriculture where industries, shops, schools and hospitals operate to serve as the center of economic and cultural activities for the broad masses of workers.

Need for Greater Production of Rubber for the Motherland

The production of natural rubber has been a gap in China since Liberation. In 1951, planting of rubber was begun on Hainan Island under the direct leadership of Comrade Ye Jianying. Premier Zhou also expended untold energy on the development of our own rubber enterprises. There was nothing that Premier Zhou did not personally concern himself with, from the formulation of plans for rubber development to the building of production, to mechanical equipment and management. Premier Zhou also personally summarized for us the scientific experiences for growing rubber of "dig large holes, heavily fertilize, build terraced fields, create shelter forests against the wind, and grow plant cover crops." In February 1960, Premier Zhou personally went to Hainan Island to inspect the rubber farms, traveling over almost the entire island. At the Xilian Farm, Premier Zhou joyously said: "We have our own rubber trees and we must produce more rubber and better rubber. Our country greatly needs rubber!" Premier Zhou also wrote an inscription for the farm that read, "Xilian treasure island, pearl of the southland."

When inspecting the South China Tropical Crops Institute and the Tropical Crops Institute, Premier Zhou said joyfully: Hainan Island is truly a treasure

Island. He encouraged everybody to unwaveringly adhere to the path of a combination of industry and agriculture and to make a greater contribution to the development of the motherland's tropical crop endeavors. The premier also personally wrote the verse, "Go to work in Danzhou [an area in Hainan Island] and put down roots in treasure island." In April 1961 during his visit to Xishuangbanna, Premier Zhou inspected the Tropical Crops Institute and the Jinghong Farm. At the farm, the premier stroked a rubber tree and said with deep feeling: "This tree is our own and you must be sure to take good care of it so that it produces a lot of rubber for the motherland." "Rubber is an important strategic good which is very much needed in the state plan and in the livelihood of the people. Comrades, think of the terrible amount needed for every person in the country to have one pair of rubber shoes. Right now China's rubber production does not amount to much, and the imperialists have blockaded us. We must follow the instructions of Chairman Mao to become self-reliant and develop the young rubber industry of our motherland. There are not many places where we can grow rubber. Here in Xishuangbanna the soil is good; the climate is good; and the responsibility on the shoulders of you comrades is great." The young rubber trees that Premier Zhou saw have now become a luxuriant rubber forest that continuously provides the motherland with large amounts of rubber. Under the loving care of the old generation of proletarian revolutionaries, our natural rubber industry has vigorously developed.

In February 1966, Premier Zhou listened raptly to a report from comrades in Guangdong and Yunnan on rubber production there. The premier repeatedly emphasized the need to learn humbly from the experiences of others, to fully summarize one's own negative and positive experiences, not to repeat the mistakes of the past, not to make any more detours, and to tell others of the detours one has taken. Premier Zhou also spoke of Mr Chen Jiageng's [7115 0837 1649] views that rubber plantations should be kept clean, should be kept clear of stumps, should not be overgrown with weeds, and should have shelter forests. [Mr Chen Jiageng, deceased rubber baron of Malaysia and Singapore, is better known as Mr Tan Kah-kee, the Hokkien reading of his name].

Need To Carry Forward the Nanniwan Spirit in Building Farms

Premier Zhou instructed leadership comrades of all echelons on the farmland reclamation front that our construction of our great motherland is an arduous struggle requiring determination for arduous struggle and no helter skelter action; otherwise what our generation builds, our generation may also destroy. Premier Zhou also pointed out that farm reclamation is community undertaking with a common failing, namely great expense. Reclamation units should give urgent attention to administration and management, institute increased production while practicing economy, oppose extravagance and waste, and reverse losses within a limited period of time. He also emphasized that in the building of farms, the fine tradition of self-reliance must be brought into play; the spirit of Nanniwan must not be lost, and if lost it must be restored.

Premier Zhou particularly emphasized the need to organize the dependents of workers so that they will be able to contribute their own strength to the building of socialism. At present, many farms throughout the country have organized dependents, some of them to handle livestock production, some to handle industrial sideline production, and some to do work of a service nature. They carry out a system of collective ownership, calculate workpoints on the basis of work done, and bear responsibility for profits and losses. In this way not only is the problem of employment for the dependents of workers solved and the income of workers increased, but workers' dependents become a major force in the development of diversified operations on farms and create wealth for the country.

Premier Zhou showed great concern for relations between farms and surrounding communes and brigades. Following receipt of a report from a rubber reclamation area in 1966, Premier Zhou pointed out that action should be taken to have farms work together with communes both to develop rubber, increase production of grain, increase the income of the masses, and to make for good relations between the farms and the communes. The premier also reminded us that in promoting this form of farms working with communes, the masses would have to practice self-reliance and not lie back on the corpus of the state. Mechanized farming would also require collection of costs involved. He also pointed out that communes and brigades linked to farms would still have a system of collective ownership with calculation of workpoints on the basis of work done. The premier also instructed us to diligently summarize experiences in this regard and set up several alternative ways of doing things. In accordance with the instruction of the premier, quite a few farms linked to communes and brigades throughout the country instituted a unified leadership and separate accounting, with the farms supporting the development of commune and brigade production, strengthening the commune and brigade economies, increasing commune members' incomes, and developing a close relationship between the farms and the communes.

A look back on the course of the struggle on the farm reclamation front has made us realize more deeply that it was under the leadership and loving care of Chairman Mao, Premier Zhou, and the older generation of proletarian revolutionaries that the broad masses of workers arduously struggled and practiced self reliance to build more than 2500 farms on barren plains, in marshes, on deserts, and along sea beaches. It was only through their efforts that it was possible annually to tender to the state more than 3 billion jin of commodity grain as well as other farm and livestock products and industrial products to make a steady contribution to the country. Since the smashing of the "gang of four," the disarray at state farms has been removed and normalcy returned. Production has been revived and developed, and administration and management have been improved. In a comparison of 1978 with 1976, loss figures for state farms nationwide declined 80 percent, and last year the loss stigma was fully removed. At the present time, the entire party and country is in the process of implementing a shift in the work focus, carrying out policies of readjustment, restructuring, consolidation, and improvement to place the national economy on a sustained track of highspeed development in a first campaign to realize the four modernizations. Under

the leadership of the Party Central Committee, we must be of one heart and one mind, go all out, and strive to make the building of state farms become high in labor productivity, in their commodity rate, and in their rates of profit so that combined agricultural, industrial, and commercial socialist modernized agricultural enterprises will become bases for commodity grain, industrial raw materials, non-staple foods for cities, and export goods for foreign trade. We are deeply confident that the goal of combat on the farm reclamation front will definitely be attained, and that farm reclamation soldiers will definitely be able to make new contributions in the battle to realize the four modernizations.

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CSO: 4007

BRIEFS

RICE PADDY FLOATING TRACTORS--Beijing, 17 Oct (XINHUA)--Chinese engineers have developed a new principle for constructing more efficient tractors used in rice paddies by making use of the bouyancy of the muddy water. A 12-horsepower tractor constructed under what is called the "floating-semifloating" principle does as much work as 3 walking tractors of the same capacity designed for paddy use, and more than a conventional 20-horsepower tractor adapted to paddies. According to an engineer attending the 1980 annual meeting of the Chinese Society of Agricultural Machinery which closed in Beijing today, this was confirmed through comparison tests made between 1979 and 1980 in Hubei, Zhejiang and Guangdong provinces, which are major rice producing areas in southern China. Senior engineer Wang Wenlong of the Loyang Research Institute of Tractors was the first to develop the principle. The tractors, he said, are kept half afloat by a boat or a sled and propelled by wheels. In China, they are called "ji geng chuan" or "boat tractors." [Text] [OF201521 Beijing XINHUA in English 1224 GMT 17 Oct 80]

CSO: 4020

BEIJING

BRIEFS

BEIJING DAIRY SHOW--Beijing, 15 Oct (XINHUA)--A 5-year-old Frisian hybrid cow carried off the top prize of 1,000 yuan and a cloisonne cup today on the final day of the Beijing dairy show which has been running for 8 days. More than 10,000 milkers from 11 state farms and 35 dairy farms in the Beijing area were entered in the competition and 94 won through to the final round. The champion, a mixture of the Frisian and Heilongjiang breeds, was selected for her appearance and annual milk yield, estimated at over 10,000 kilograms. The "high-yield and long-life" trophy went to a Frisian milker which is still a big producer and has calved 14 times. Farms in the Beijing area have an estimated 18,000 milk cows, 12 times the figure in the 1950's, and they produce 59.5 million kilograms of milk annually. This is still not enough to meet the city's demand for milk. [Text] [Beijing XINHUA in English 1226 GMT 15 Oct 80 OW]

CSO: 4020

GUARDING AGAINST COLD DAMAGE TO RICE

Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY]
in Chinese No 2, 10 Apr 80 p 1

[Article by Li Yizhen [2621 5030 3791]: "Analysis of Cultivation
Techniques for Bumper Rice Output"]

[Excerpts] Double cropping of rice in our province is done on 72.5 percent of the rice growing area. This percentage has endured for 9 years. Four hundred million mu of single crop ricelands are distributed in fields that depend on rainfall and fields on the periphery of high and low mountain areas. Both the proportional area and the pattern of cultivation are substantially sensible, so further efforts will have to be concentrated on per unit yields. A great imbalance currently exists everywhere in per unit rice yields. Per unit yields in Longhai County of 800 jin are 60 percent above the average level throughout the province, while per unit yields from small areas amount to as much as 1,600 jin, which is double the local yield. An extremely large potential for increased output exists.

Damage to rice crops from the "three colds" is of long standing. In 1966, the occurrence in the same year of both rainy season [April and May] cold and autumn cold resulted in greatly reduced output throughout the province. Following changes in the wide area system, virtually every year some cold damage occurred. In 1971, 1.2 million mu of the late rice crop was damaged by autumn cold; in 1972, a rotting of rice seedlings as the result of springtime cold took place on 1.2 million mu. In 1974, springtime cold caused more rotting of seedlings; and in 1975, the early rice crop was again smitten with the rainy season cold. In 1976, the occurrence of both the 'return to cold in spring' [0227 2504 1383] [usually occurs in April] and the autumn cold caused a loss of 67 million jin of early crop rice and the abortion from cold damage of 1.5 million mu of late rice. In 1979, another 1.6 million mu of late rice suffered cold damage. In the 9 years since 1971, there have been 4 serious occurrences of 'return to cold in spring,' 2 occurrences of rainy season cold, and 3 occurrences of autumn cold. In Japan too, cold damage occurs regularly, principally to single-crop rice, and on an average of once

every 4 years. In Hokkaido Prefecture on Hokkaido, cold damage was extremely severe in 1956 causing average per mu yields of only 8 jin. A meteorologist has predicted increasing coldness of the climate over the next 20 years.

'Return to cold in spring' occurs every year, and a really serious 'return to cold in spring' occurs once every 2 or 3 years resulting in rotting of seedlings over a wide area.

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CSO: 4007

USES, EXPERIMENTS OF HETEROSIS IN HYBRID RICE

Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY]
in Chinese No 2, 10 Apr 80 p 18

[Article by Lei Jiecheng [7191 2212 2052], Rice and Cereal Grains Institute, Fujian Provincial Agricultural Academy: "Tentative Ideas About the Uses and Study of Heterosis in Hybrid Rice"]

[Excerpt] In the spring of 1974 the first male sterile lines, V41A and V20A were bred in Fujian Province to bring about a coherent matching of 3 lines. This matching produced the 3 combinations Siyou No 2, Siyou No 3, and Minyou No 3. In 1974, hybrid rice was field tested as a late crop on 5 mu. In 1975, the field testing was done on 71 mu; in 1976, hybrid rice was demonstrated on 50,000 mu; in 1977, its cultivation was extended over 2.48 million mu; and in 1978, it was grown on 8 million mu. In 1979, this was expanded to 9.15 million mu in which Siyou No 2 predominated, but with Minyou No 3, Weiyou, and Shanyou also occupying a certain area. A look at harvests in all places showed general increases in per mu yields of from 100 to 150 jin over conventional varieties with high increases in yields totaling more than 200 jin. These were even 10-fold increases. There were also instances in which bumper crop stretches produced from 1,200 to 1,300 jin per mu from a single crop, or in which high yield fields produced from 1,500 to 1,600 jin per mu. The masses said with praise: "Per mu yields of 800 or 900 jin are common; yields of 1,000 jin occur; and yields of 1,200 or 1,300 jin are not rare."

Superior hybrid varieties carry a heavy burden for increased yields of grain. The situation for increased output since 1978 shows that the average per mu yields of 649 jin from 300,000 mu of early hybrid rice in Longyan Prefecture amounted to increased yields of 167 jin per mu over the average 482 jin per mu yields from more than 1.3 million mu of conventional early rice. Average yields per mu of 474 jin of late hybrid rice from 500,000 mu amounted to increased yields per mu of 114 jin over the average per mu yields of 360 jin from 500,000 mu of conventional medium maturing late rice. In Sanming Prefecture, increase in yields

to 110 million jin of hybrid from 1.58 million mu amounted to 55 percent of the total 1978 grain output of 200 million jin for the entire prefecture. In Jianyang Prefecture, increase in yields to 120 million jin of hybrid rice from 2 million mu of land amounted to 60 percent of the total grain output of 200 million jin for the entire prefecture. The total hybrid rice area throughout the province amounts to one-third the total area sown to rice, while the increased output from the hybrid rice amounts to half the increased output of grain throughout the province. This plays a major role in the realization for the first time in our province of surpassing the "program" for per mu yields.

The 1.25 million mu of hybrid early rice grown in Fujian Province during 1979 amounts to an expansion by 150,000 mu over 1978. This has, in short, played a role in the increased output. But the increases have been manifested differently in separate areas. In southern Fujian, yield areas have registered markedly increased output from large areas. In Longhai County, some production brigades have planted nothing but hybrid. Per mu yields of 1,100 to 1,200 jin for a single crop were harvested by the entire brigade, and 14 different places had per mu yields of more than 1,500 jin. The highest was 1,646.8 jin per mu. In these places, the area planted to hybrid rice is becoming ever greater. Meanwhile, in mountain areas, there has been an almost universal incidence of rice blast, mostly in Siyou No 2 and Siyou No 3. Output has not been high, and reduced output has even occurred. As a result, the area planted to hybrid rice in these places has shrunk.

A proper view of hybrid rice must be maintained. Experiences with hybrid rice output on hundreds of millions of mu of land throughout China attest to the strong heteroses of hybrid rice. These heteroses have played a real role in bringing about increased output in many places, and the cultivation of hybrid should be promoted. The principle problem is the exclusive cultivation of one variety, a problem on which research must be intensified.

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CSO: 4007

BRIEFS

HYBRID RICE GROWING--Test planting and demonstration of hybrid rice began in our prefecture in 1976. By 1978, cultivation of hybrid rice had spread over 1,908 million mu throughout the prefecture. Of this total 1.48 million mu was in double-crop late rice, accounting for 69.4 percent of the total double-crop late rice area in the prefecture. Yields per mu averaged 427.7 jin, an increase of 113 jin per mu over conventional varieties. By 1979, cultivation of hybrid rice had been extended to 2.177 million mu, of which 1.742 million mu was double-crop late rice, or about 80 percent of the double-crop late rice area. An overwhelming majority of prefectures harvested strikingly increased output, but some areas that had not mastered the characteristics of hybrid rice and the peculiarities of its cultivation techniques were unable to derive fullest advantage from it. Consequently, increases in yield were not great or there were no increases in yields at all. In terms of current levels of production, a fairly great disparity exists in per unit yields of hybrid rice throughout the prefecture. Highest per mu yields are 1,446 jin and lowest per mu yields are 300 jin. Therefore, a great potential exists for increases in per unit yields of hybrid rice. Some ideas are given below for high output cultivation of hybrid rice that are based on the overall cultivation system of the past several years [Excerpt] [Fuzhou FUJIAN NONGYE KEJI [FUJIAN AGRICULTURAL SCIENCE AND TECHNOLOGY] in Chinese No 2, 10 Apr 80 p 11] 9432

FUJIAN REVOLUTIONARY BASES--In 1979 and 1980, the state appropriated 16.5 million yuan to help build up old revolutionary bases in the west of Fujian. The money has been used for agricultural development and for promoting diversification and increasing the income of the peasants. [Fuzhou Fujian Provincial Service in Mandarin 1035 GMT 8 Oct 80 HK]

CSO: 4007

MEASURES TO INCREASE SUGARCANE PRODUCTION DISCUSSED

Five-Point Program

Guangzhou NANFANG RIBAO in Chinese 4 Aug 80 p 2

[Article by Nong Wen (6593 2429), Provincial Agricultural Department: "Give Attention to the Development of Guangdong's Great Special Advantage, Sugarcane Production"]

[Text] Cane sugar is the great special advantage of Guangdong Province, and rapid growth of cane sugar production has extremely great significance for the rapid development of the economy of Guangdong.

Since liberation, cane sugar production in Guangdong has grown quite rapidly. In 1978, annual sugar output exceeded 1 million tons, and the area planted to sugarcane increased 5.6 times over what it had been in 1949. Both total output of sugarcane and output of sugar increased 12-fold, and average yields increased from 3,000 jin to more than 6,000 jin per mu. But Guangdong's production of cane sugar is very erratic, and during the past several years there has been a tendency toward decline. The reasons for this are numerous, but most important has been the numerous changes in government policies. During the 1970's, four of the seven changes in sugar cane policy in our province took place in a period of close to 2 years. The numerous changes in policy impaired the confidence of the farmers for the development of sugarcane production. The area planted to sugarcane and sugarcane output quickly underwent great decline, especially when policy changes damaged the farmers' welfare so that producers could not make a profit. Additionally, the pattern of production and the system of production contained elements that were not helpful to the development of sugarcane production.

How can all the positive elements be readjusted so that sugarcane production in Guangdong Province will increase? We feel that the following important measures must be adopted.

1. Return a portion of profits from cane sugar industries and businesses to the farmers so that the producers will stand to gain, thereby stimulating enthusiasm for more planting and better cultivation of cane. In the present distribution to agriculture, industry, commerce, public finance, and taxes of money received from the sale of sugar, the farmers' earnings

are excessively small. A portion of the sugar refineries' net profits must be returned to the farmers, thereby increasing by several yuan the price paid for each ton of cane. In order to make up for the reduction in sugar refinery profits, a portion of profits going to the commercial units may be used to compensate the sugar refineries. In so doing, no change will take place for the time being in the sugar refinery system. Commerce will be supporting industry, and industry will be supporting the farmers. In returning a portion of profits to the farmers, it may appear that the state will sustain a reduction in income, but in fact, as a result of the arousal of farmer enthusiasm for growing sugarcane and the resulting increase in the planting and care of sugarcane, the state will greatly increase its income from increased cane sugar production.

2. Institution of a policy of a ton of grain for a ton of sugar. Reasonable basic figures on the marketing of sugar have to be worked out whereby an award sale of grain should be made for each excess ton of sugar brought in (with each ton of sugarcane calculated as producing 230 jin of sugar). The basic figures must exclude sugarcane grown on private plots, sugar retained under the policy for groups, and temporary increases in the amount of sugar brought in. Rational readjustment should be made in base figures so that counties, communes, and production brigades will have production goals they can exceed, and so that accountability for county fulfillment of production and for meeting state purchase levies will be borne by production teams in a system of rewards and punishments, in which award sales of grain may equal government grain procurement quotas. In consideration of the grain-eating habits of the masses in Guangdong Province, implementation of a ton of grain for a ton of sugar will require bringing in mostly rice. If importation of rice into the province poses problems, some wheat and corn may be imported, using some corn and wheat to replace feed grains and to replace award sales of paddy rice for pork. Additionally, a policy should be worked out giving priority to areas where sugarcane production is concentrated.

3. Do a good job in the distribution of sugarcane production and in building cane sugar production bases. A great deal of untapped potential still exists in both the soil conditions and sugar refinery equipment in Guangdong Province, as for example in the Zhujiang Delta, where there are more than 6 million mu of sandy reclaimed fields. Figuring crop rotation once every 4 years, between 20 and 25 percent of the paddy fields would be suitable for the growing of sugarcane. By doing this, 1.5 million mu of sugarcane could be grown annually--an expansion to 800,000 mu from the 600,000 mu of paddy fields in which sugarcane is currently being grown. Additionally, there are almost 200,000 mu of reclaimed land that is salty in Foshan Prefecture, and on both banks of the eastern branch of the Zhujiang there are 500,000 mu of paddy fields that are frequently inundated, with a loss of the crop. Furthermore, there are low-yield rice fields everywhere that are suitable for the growing of sugarcane. By changing these fields to the growing of sugarcane, their advantages could be exploited while avoiding their disadvantages, and greater economic benefits could be derived.

Growth of sugarcane production requires taking hold of key points. The sugar output capacity of the counties of Doumen, Zhongshan, Panyu, Dongguan, Xinhui, Shunde, Huiyang, Xuwen, Suiqi, and Jieyang amounts to half that of the entire province. A priority in policy must be accorded these key sugarcane-producing counties, while at the same time they must be given priority supply of production materials in order to permit the earliest improvement in sugarcane varieties, in the use of chemicals, in water conservancy, and in mechanization, so as to increase the rate of productivity and the community rate.

4. Increase sugarcane output per unit of area. Vigorous efforts must be made to promote superior varieties, with particular emphasis on intensified promotion of early maturing varieties with high sugar yields. There has to be prompt supply of chemical fertilizers and additional applications of phosphate and potash fertilizer. In order to control insect pests on sugarcane, there must be active importation and test production of high-potency pesticides such as furadantin. Water conservancy projects have to be built in sugarcane-base counties, and spray irrigation should be brought in little by little. In places where conditions permit, there should be appropriate experimental plantings of summer-growing sugarcane in certain proportions.

5. Reform of the existing management system. The present system does not suit the development of sugarcane production in Guangdong Province. Prominent problems currently are: the units principally responsible for production have no voice in the setting of policy; units responsible for deciding policies give a lot of attention to the quota points of view and the points of view of business, but they give little consideration to arousing the enthusiasm of producers. This state of affairs must be changed. Establishment of a sugarcane production committee composed of agriculture, light industry, and business sectors is recommended. Alternatively, establishment of a sugarcane administrative bureau for unified guidance of sugarcane production is recommended. The main function of these organizations would be to investigate and study, to formulate policy, to allocate the production materials used in sugarcane production, and to assure the smooth development of sugarcane production.

Use Bagasse in Textiles

Guangzhou NANFANG RIBAO in Chinese 4 Aug 80 p 2

[Article by Zhong Yukun [6945 3768 2492], engineer, Provincial Scientific Committee: "Make Full Use of Bagasse Resources To Develop Manmade Fibers"]

[Excerpt] Guangdong Province has abundant sources of bagasse. Quantities are large and concentrated, the price is cheap and it is easily obtainable. At the present time, each mu of land in Guangdong Province produces between 2.5 and more than 4 tons of bagasse annually. For every 300 to 500 kilograms of white sugar produced, between 600 and 1,000 kilograms of bagasse remain, which is enough to make between 30 and 60 kilograms of manmade fiber,

which is the equivalent of the annual output of bumper harvest cottonfields of somewhat more than 1 mu in area throughout the country. Additionally, byproducts of 25 kilograms of medicines and the raw material xylitol, which has many industrial applications, are produced. Its economic benefits are considerable. At the present time, from the production of about 1 million tons of cane sugar in Guangdong Province, about 2 million tons of bagasse results. This is an astounding amount. Furthermore, use of bagasse as a raw material for the production of manmade fibers, paper, furfural, and fiberboard amounts to only 28 percent of the total quantity of bagasse. The utilization rate is very low, and use of bagasse to produce manmade fiber is even lower, amounting to only 3.53 percent. On the basis of 5 tons of bagasse for the production of 1 ton of fiber--which translates into 7,000 meters of synthetic fiber--6 billion meters of cloth could be produced from the bagasse currently not being used for the production of manmade fiber, an amount sufficient to provide 30 meters to every person in the province. It holds bright prospects for hastening the development of our province's textile industry and solving the problem of clothing its people.

Guangdong Province has an abundance of technicians and a good foundation. Many of the country's technicians and specialized workers skilled in the manufacture of viscose fiber from bagasse are concentrated in Guangdong. Since 1958, our province has built a large number of manmade fiber pulping plants (workshops) and manmade fiber (reeling) plants (workshops), using bagasse as a raw material. Following readjustment, there are now four pulping plants (workshops) and four manmade fiber plants (or workshops). The province is now able to produce more than 6,000 tons of pulp and 10,000 tons of fiber annually. It has more than 2,000 workers specialized in the manufacture of viscose fiber from bagasse. There are also several research institutions throughout the province specializing in research in manufacturing viscose fibers from bagasse; the number of researchers [at these institutions] is several hundred. Our province has a fairly good foundation right now for research into the use of bagasse to manufacture manmade fibers, for teaching, for design, and for the manufacture and installation of equipment.

In order to make full use of bagasse resources and promote the light textile industry in Guangdong, I recommend that the authorities concerned strengthen leadership in research and in production of manmade fibers from bagasse. Research at the present time should be concentrated on studying improvements in the nature of existing varieties of manmade fibers and to lowering production costs to make a breakthrough at the earliest possible time in the quality and economics of their industrial production. In production, scientific readjustments should be made in the layout of production plants. Readjustments should include the establishment of pulping plants as an independent enterprise, to be combined with reeling plants to form an integrated whole. I recommend, in addition, the establishment bagasse raw materials bases to turn out pulp for manmade fibers, with emphasis on the use of advanced bagasse separation methods to help production of manmade fibers. I recommend the strengthening of research on cellulose, bringing it into line with national research plans. At the same time, there should be a great comprehensive effort to use bagasse, improve upon technical equipment, and eradicate the "three waste" pollutants [waste gas, waste water, and industrial residue] from manmade fiber production.

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GUANGZHOU TO BUILD NINE VEGETABLE HOTHOUSES

Guangzhou NANFANG RIBAO in Chinese 15 Aug 80 p 1

[Text] In order to hasten the pace of the modernization of vegetable production in the suburbs of Guangzhou municipality and to provide consumers with more "out-of-season" vegetables, the Guangzhou Municipal Vegetable Company recently concluded a contract with the Provincial Farm Machinery Institute whereby the institute will undertake responsibility for designing and manufacturing nine hothouses for growing vegetables, all of them to be delivered for use during the first 6 months of next year.

Use of hothouses to grow vegetables is the most advanced technology in modern agricultural production. By planting vegetables in hothouses, temperatures and humidity may be regulated at will, thereby diminishing the adverse effects and restrictions natural conditions impose. During winter, the melons and pulses of summer may be grown in hothouses, and during summer, winter vegetables may be produced. Furthermore, output can be increased, thereby increasing the utilization rate of the soil and avoiding or diminishing outbreaks of diseases and insect pests. For the purpose of improving the conditions for production of vegetables, Guangzhou municipality's departments concerned have decided to allocate 250,000 yuan for the building of a group of hothouses in the suburbs of the city. Recently the Guangzhou Municipal Vegetable Company concluded a contract with the Provincial Farm Machinery Institute by which the institute would be responsible for designing and manufacturing nine hothouses with a total area of 2,700 square meters. It was agreed that all these greenhouses would be delivered during the first half of next year to the major vegetable growing areas in the suburbs of Guangzhou, namely the Sanyuanli Commune, the Xinjiao Commune, the Wanggang Production Brigade, the Lianxing Production Brigade, and to the Guangzhou Municipal Vegetable Institute to be put into production.

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CSO: 4007

HAINAN ENLARGES AREA FOR SUMMER, AUTUMN CROPS

Guangzhou NANFANG RIBAO in Chinese 17 Aug 80 p 1

[Article by Jian Chuan [1696 1557] and Huan Mei [3562 5019]]

[Text] Everywhere on Hainan Island efforts are being made to enlarge the area planted to summer and autumn crops to make up for disaster damage done to the early crop so as to harvest a bumper crop in agriculture for the entire year.

According to the most recent statistics, more than 718,000 mu has already been planted to sweet potatoes, corn, gaoliang, cassava, soybeans, and peanuts. Planting of dryland grain has been increased by 341,000 mu and 120,000 mu respectively as compared with the same period last year and the highest year on record. Planting of soybeans, peanuts, and cassava has been increased by 141,900 mu over the same period last year. Additionally, crops grown on slopes such as common sweet potatoes, taro, and betel palms have been further revived.

Ever since last winter no place on Hainan Island has had a soaking rain for 7 months in a row, and this year just at the beginning of the harvest of the early rice crop, some areas were hit with two typhoons, one after another, as a result of which the early rice crop was diminished. In order to make up for this loss and wrest a bumper harvest for the entire year as a whole the Hainan Prefecture CCP Committee convened several meetings of those concerned and adopted the measures given below to do a good job of summer and autumn planting. 1) Continued honoring of the autonomy of production teams with the kinds of crops and the amounts of crops planted being decided by the production teams themselves. 2) Implementation of the collective and the individual at the same time, permitting individual commune members' spare labor to be used to plant crops on unproductive slopes and unproductive land under unified arrangements made by the production teams with the harvest going to whomever does the farming of such land. 3) Continued consolidation and improvement of the various systems of responsibility for production currently in being. Additionally, prefecture agricultural authorities are to allocate a fixed amount of fertilizer per mu on the basis of the actual area cultivated in a given jurisdiction and to assure that harvests go to the tillers. Thanks to a clear guiding ideology, the implementation of policies, and the vigorous arousal of the enthusiasm of the broad masses, progress of autumn and fall planting has been rapid, and quality good.

rice gruel to piglets has been changed to feeding of a mixture of things including wheat hulls, soybeans, fish powder, and cereals, and a change has been made from the feeding of cooked food to raw food. In this way, feeding of a litter of piglets requires only somewhat more than 100 jin of paddy rice instead of the former 300 jin, and there is a saving as well in both labor and time so that most rural households can now raise one or two sows. Fourth, in counties where conditions are suitable, companies have been set up to breed fowl and livestock. Production and marketing of superior breeds has been put under the unified leadership of the County Livestock Bureau in order to assure the smooth development of livestock improvement work. These views of theirs merit the careful attention of the authorities concerned.

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CSO: 4007

HUIYANG PREFECTURE EARLY RICE, PEANUT OUTPUT REPORTED

Guangzhou NANFANG RIBAO in Chinese 17 Aug 80 p 1

[Article by Yuan Jinlan [5913 6651 5695] and Liu Yanhang [0491 3601 5300]: "Huiyang Prefecture Shows Striking Successes in the Rotation of Oil and Grain Crops. Bumper Harvests This Year in Early Crop of Peanuts From 400,000 Mu of Wetlands"]

[Text] Huiyang Prefecture has had striking success with this year's early crop rotation of paddy rice and peanuts. Total output of more than 800,000 dan of peanuts were harvested from 400,000 mu of wetlands throughout the prefecture. When added to peanut output from drylands, total output for the early crop of peanuts throughout the prefecture showed an increase of more than 280,000 jin over the same period in 1979, which had the highest level of peanut production ever recorded. Though the area planted to early rice was reduced, total output showed an increase of more than 17 million jin, nevertheless, over the same period last year, and per mu yields exceeded the highest levels ever recorded for the same period.

Almost half of the paddy field area in Huiyang Prefecture were formerly sandy and of low fertility. Annual per mu yields amounted to only 600 or 700 jin. In order to improve the soil structure and increase paddy rice yields per unit of area, the Huiyang Prefecture CCP Committee sent agricultural technicians to some communes in Bolo and Huiyang counties in 1964 to conduct experiments with the rotation of rice and peanuts, which produced remarkable results. In the following year, the total area in the prefecture devoted to rotation of rice and peanuts was enlarged to 210,000 mu, and total output of paddy rice for that year suddenly shot up from 2.23 billion jin to 2.889 billion jin. Nevertheless, during the 10 years of turmoil, this successful experiment was criticized and strangled as a "tendency toward capitalism" that emphasized money and slighted grain.

Once the "gang of four" was smashed, and more particularly during the past 2 years, Huiyang Prefecture has summarized the experiences with rotation of rice and peanuts, and has made new readjustments in the internal structure of its agriculture in a decision to promote a widespread system of rice and peanut rotation. With this in mind, the Prefecture CCP Committee

further implemented a policy of award sales of chemical fertilizer and conversions of peanuts to grain terms. In addition to the giving of rewards in exact amounts for quotas set by the province, they also stipulated that for every 100 jin of peanuts delivered beyond quota, an exchange of 250 jin of paddy rice could be made. As a result of the serious attention given by the leadership, and the implementation of measures, rotation of peanut and rice crops throughout the prefecture has constantly increased. Last year the area of wetlands planted to peanuts amounted to 250,000 mu, and it has been increased by another 150,000 this year. The area of crop rotation between peanuts and rice now amounts to more than 10 percent of the wetlands area of the entire prefecture.

In the course of promoting the rotation of grain and oil crops, Huiyang Prefecture has also given attention to determining the proportion of crop rotation between wet and drylands on the basis of differences in the characteristics of different areas. In the case of areas of low soil fertility from which rice yields are low, crop rotation has been held to from 15 to 20 percent of the wetlands area. In areas of high rice yields, it has been held to from 5 to 10 percent. Experience has demonstrated that this way of doing things not only does not impair rice production, but is also able to take advantage of special local advantages in the promotion of the development of agricultural production.

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CSO: 4007

BRIEFS

EARLY RICE HARVEST--For over a year Guangdong has been readjusting the agricultural structure in light of actual conditions. Last year nearly 1 million mu of rice fields were planted with other crops. As for this year's early crops, Guangdong again switched 1 million mu of rice fields to peanuts, soybeans and other crops. The rice harvest increased more than 250 million jin over 1979; peanuts increased more than 80 million jin; soybeans increased 15 million jin. [Hong Kong WEN WEI PO in Chinese 25 Sep 80 p 2]

FISH STOCKING--Guangdong Province has released 3 million fish of economic varieties into its rivers for the first time as a means of increasing propagation of river fish resources. As a result of the reclamation of land for fields from along the rivers of Guangdong Province, the interdiction of streams and the building of sluice gates, pollution by industrial waste water, and excessive fishing, a steady decline has occurred in the aquatic resources of the rivers and streams, and some breeds of economic fish are on the verge of extinction. In order to bring about a rapid revival of fish resources, Guangdong Province has recently stepped up propagation in the Tanjiang River in Xinhui County, and in the Lianjiang River in Chaoyang County, releasing many breeds of fish including black carp, grass carp, silver carp, and variegated carp, and common carp. Xinhui and Chaoyang counties have also set up leadership organizations for this work, and have established a government fish administration station, has designated areas forbidden to fishing and times prohibited for fishing, has stipulated the boats and gear to be used in fishing, and has prohibited use of equipment or fishing methods injurious to the fishing industry, resolutely protecting aquatic resources in rivers. The two counties plan to continue to release 10 million fish of different breeds within this year. [Text] [Guangzhou NANFANG RIBAO in Chinese 17 Aug 80 p 1] 9432

CSO: 4007

INCREASING AGRICULTURAL RESEARCH, TECHNIQUES URGED

Harbin HEILONGJIANG NONGYE KEXUE [HEILONGJIANG AGRICULTURAL SCIENCES]
in Chinese No 2, 10 Mar 80 pp 1-3

[Article by Liu Zuy [0491 4371 5940] of the Heilongjiang Provincial
Agricultural Bureau]

[Excerpts] Now, the entire province's per mu yield of wheat has surpassed 200 jin. The sowing area of wheat has also expanded from the over 7 million mu at the time of Liberation to 30 million mu. During the 1960's, as the "8-point policy for agriculture" was implemented on an overall basis, corn and hybrid varieties of sorghum were popularized over large areas and the yield greatly increased. The average single unit yield of corn rose from 160 to 170 jin during the beginning period after Liberation to 335 jin in 1973. During the 2 recent years, the yield broke the record of 400 jin. Popularization of the "double hybrid" varieties was important in enabling our province's total food grain production to break the record of 20 billion jin. In addition, during recent years, we also used agricultural machinery on a wide scale, applied chemical fertilizers, popularized the method of deep and loose plowing launched biological prevention and chemical weeding, improved the sowing method, implemented reasonably dense planting and large area improvements of soil, etc. The popularization and application of these new techniques stimulated the continued development of our province's agricultural production.

Our province has a wide expanse, is relatively rich in natural resources and is one of the nation's important commercial food grain bases. Although for several years agricultural production has experienced greater development, unit yield of food grains is not high, total yield is unstable, there is no diversity, the rate of development is slow, the scope of fluctuations is great, and all of these problems have not been completely turned around. The main reason is that besides problems in the thorough implementation of policy, in agricultural production, the first reasons are mainly an imbalance of agriculture, forestry and animal husbandry, a weak basic construction in agriculture, and the frequent occurrence of such natural disasters as drought and low temperatures

which have caused serious damage. In 1969, 1972 and 1963, low temperatures and drought which occurred during these years reduced the yield by 5 to 6 billion jin. In 1977, drought and such damage reduced the yield by over 5 billion jin. The second reason is the drop in the soil's fertility. Our province was developed relatively late, but because of negligence in preserving water and soil, rough plowing and deficient fertilization, utilization and nourishing of the soil were not coordinated and the soil's fertility dropped drastically. The content of organic substance in the soil of the province was being depleted at a rate of about 0.2 percent each year. Even in places where the level of fertilization was 2,000 to 3,000 jin, the content of organic substances dropped by 0.1 percent each year. The more the land was planted the more infertile the land became. At many places, the land "surface cracked and became yellow." The third reason is the lack of overall adjustment, planning and reasonable exploration and utilization of natural resources. Some localities did not conscientiously implement the principle of planting according to soil conditions and did not fully develop the potential of natural resources to increase production, and some resources continued to suffer damage. The fourth was that the popularization and application of some effective measures to increase yield and new scientific techniques were not widespread enough. Rough plowing and infrequent fertilization brought about a rather common occurrence of lack of seedlings and broken plants. The area of superior varieties that had a relatively suitable maturation time constituted only 59.1 percent of the total area of sowing. Insects and weeds also caused serious damage. Because of this alone, 3 to 4 billion jin of food grains were lost each year.

Increasing the application of organic fertilizers and increasing the organic substances in the soil are measures to increase yield in the current year and are also a basic construction to improve the physical and chemical properties of the soil and increase the soil's capabilities to retain fertility and water. One method is to open up sources of fertilizers on a widespread basis and raise the quality of the fertilizers. The percentage of utilization of sources of farm house fertilizers at present in our province is very low. According to surveys, the percentage of utilization of human waste and urine is only 30 percent. The percentage of utilization of manure of large domesticated animals is only 40 percent. The percentage of utilization of pig manure as fertilizer constitutes only 50 percent. The percentage of utilization of human waste and urine of residents of large and medium cities is even lower but the potential is great. At the same time, preliminary survey of the stored capacity of grass charcoal is over 30 billion cubic meters. In the mountain areas, semimountainous regions, oil-producing areas and mining areas there are 150 to 160 communes that have sufficient wood for burning. The soil's organic substances can be increased by returning stalks to the fields in a big way. There is also a lot of fallow land and in-between fields and infertile land which can be planted or used

for rotational planting of green manure crops. The future of developing marsh gas to create fertilizers is also bright. These sources of fertilizers are widely distributed, plentiful, and of good quality. As long as the basic construction of accumulation and manufacture of fertilizers is strengthened, the specialized teams for accumulating fertilizers are made sound, the reasonable reward for accumulating fertilizers is established, the method of accumulating fertilizers is improved, various sources of fertilizers are fully utilized, then the present situation of a deficiency of human waste and manure as fertilizers and poor quality can be greatly changed and the fertility of the soil can be effectively raised. The second is to exert efforts in raising the percentage of utilization of chemical fertilizers while greatly increasing the use of organic fertilizers. At present, the main problems in the use of chemical fertilizers are improper methods and poor combination of nitrogen and phosphorus. The percentage of utilization of nitrogenous fertilizers is generally only about 30 percent, and that of phosphorous fertilizers is only about 15 percent. On the average, each jin of chemical fertilizers can only produce 2 to 3 jin of food grains. If each jin of chemical fertilizers can increase the yield by 1 jin of food grains, then according to the planned application of 2 million tons of chemical fertilizers in the entire province this year, there will be an increase of 4 billion jin of food grains. To elevate the technique of using chemical fertilizers, scattered application should be changed to concentrated application, shallow application should be changed to deep application, single application should be changed to combined application, all of which will further raise the percentage of utilization of chemical fertilizers. The third is conducting the general survey of the soil well. This is a basic construction project for doing agricultural planning well, implementing scientific planting and realizing agricultural modernization. The CCP Party Central has demanded that the second national soil survey should be completed by 1983. Last year our province conducted a general survey of soils in one county and five communes as testing points and has accumulated definite experience and a backbone work team has been trained. This year, the work must be expanded according to plan. Each level of the agricultural system must strengthen its leadership to tightly grasp training of a technological force and to prepare the materials well according to the unified demands of the CCP Party Central so that this task can be accomplished quantitatively and qualitatively.

The use of seeds is a measure to increase production without large investment but is highly effective and conservative. Generally, it can increase yield by 20 to 30 percent. The use of early maturing and high yielding varieties must be implemented well and cultivation, propagation and popularization of early maturing and high yielding superior varieties must be hastened. This year, the area of planting of early maturing and high yielding superior varieties throughout the province will reach 55 million mu, an increase of 11.3 percent over last year.

At present, the main task is to develop the potential of the superior varieties, organize and adjust them, do the work of caring for the seeds well, prevent the seeds from rotting, carefully select the seeds well before sowing, to carry out the experiment in budding, raise the quality and conserve the use of seeds to assure that all seeds sown at one time will germinate and grow.

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C80: 4007

FARMS SINGLED OUT FOR ACHIEVEMENTS IN HOG RAISING

Farm 290 Increases Profit

Beijing ZHONGGUO NONGKEN [CHINESE AGRICULTURAL RECLAMATION] in Chinese No 1, 24 Jan 80 p 27

[Article by Li Yongqi [2621 3057 3825]: "Actively Increase 'Three Rates' in Pig Raising To Increase Profits for 5 Years in a Row"]

[Excerpt] The 290 Farm is located on a delta at the confluence of the Heilongjiang and the Songhuajiang. It is a farm that combines agriculture with livestock raising, with the emphasis on agriculture. Cultivated land currently amounts to 600,000 mu; the population is 34,000; and workers number 14,500. During the past 10 years beginning in 1970, the entire farm has had a policy of one pig per person and now this has surpassed two pigs per person. Year after year the farm overfulfills its quotas for the delivery of fat hogs. In 1975, the entire farm began to reverse the situation of annual losses from pig raising to earn a profit from its operations. Between 1975 and 1977, profits totaled 880,000 yuan. During these 3 years, a total of 61,804 hogs were produced of which 51,318 were delivered to the state for a commodity rate of 86.2 percent. In 1978, annual production quotas were overfulfilled, with about 20,000 hogs being delivered to the state. Output value was more than 3 million yuan, for a profit from operations. For many years in a row, this farm has been evaluated by both the provincial and state farm bureaus as an advanced unit in hog raising. In 1978, the State Farm Reclamation Bureau issued it an award as an "advanced unit" in the raising of hogs.

According to statistics from the end of July last year, 18,400 head of hogs were in pens on the farm, of which breeding sows accounted for 1,703 head and males for breeding numbered 188. They have already provided the state with 14,070 head for a 22.6 percent increase over the same period last year to fulfill 93.8 percent of their total planned quota of fattened hogs to be delivered to the state.

Two Women Excel

Beijing ZHONGGUO NONGKEN [CHINESE AGRICULTURAL RECLAMATION] in Chinese No 1,
24 Jan 80 p 24

[Article from Animal Husbandry Section, Junchuan Farm, Heilongjiang Province:
"Han Dongying [7281 0392 5391] Raises 140,000 Jin of Fat Hogs in a Single
Year"]

[Excerpt] Han Dongying [7281 2639 5391] [character for dong given here differs from that given in title], female stockman of the Ninth Production Team of Junchuan Farm in Heilongjiang Province learned from the experiences in raising large herds of pigs from pig raising expert Gu Xuemei [7357 7185 1188] and made even more spectacular achievements. In 1978, she achieved a 95 percent survival rate in the raising of large herds of hogs and raised a total of 1,047 fat pigs in a single year. She singlehandedly produced 143,000 jin gross weight of pork for the country. During the first 6 months of 1979, she raised another 520 fat hogs, again exceeding the production level of last year to create the highest level of labor productivity in the livestock industry on the road of agricultural modernization.

Han Dongying started work on a farm in 1973. At a pig raising exchange of experiences conference convened by the farm, she was much encouraged upon hearing that Gu Xuemei had raised more than 800 hogs in a single year all by herself. She made up her mind to learn from Gu Xuemei and to make a greater contribution to socialism. She frequently thought to herself, "Gu Xuemei is a young woman and I am a young woman. Whatever she can do, I can certainly do." She thereupon asked the party branch of the production team for a battle assignment, determined to make an all-out effort at pig raising. During the last half of 1977, she began the feeding of large herds of pigs, achieving a survival rate of 98 percent. Within half a year's time, she raised 384 head of fat hogs. Gross weight of pigs that she had produced by herself totaled more than 53,000 jin.

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HEILONGJIANG

BRIEFS

TIMBER UTILIZATION FORUM--The first Heilongjiang provincial forum on multipurpose use of timber concluded in Harbin 10 October. Forum participants discussed the 10-year development program and exchanged views concerning policies on the multipurpose use of timber. [SK141800 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 11 Oct 80]

SUGAR REFINERIES--Most of the 22 sugar refineries in Heilongjiang Province were operating as of 10 October. The six largest refineries are now processing over 1,500 tons of beets daily. The province's total beet output this year more than doubled the 1979 output figures. [SK141800 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 12 Oct 80]

FARM MECHANIZATION GROUP--On 12 October, Zhao Dezun, secretary of the provincial party committee, and Wang Luming, deputy provincial governor, received the composite work group sent by the Ministry of Agricultural Machinery to assist Heilongjiang Province's farm mechanization. They heard a briefing prepared by the department concerned. They will conduct grassroots research to help mechanize our province's agriculture. [SK 141800 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 12 Oct 80]

RICE HARVEST--Since 15 September, the counties of Tangyuan, Acheng and Wuchang in Heilongjiang have, one after another, started harvesting. According to a survey, this year's rice harvest will again be a bumper one. Total output could hopefully exceed the highest levels in history. This year the actual sown area in Heilongjiang was expanded to more than 4.3 million mu. [Hong Kong ZHONGGUO XINWEN in Chinese 24 Sep 80 p 1]

CSO: 4007

MECHANIZATION OF RICE TRANSPLANTING ON INCREASE

Hong Kong ZHONGGUO XINWEN in Chinese 23 Jul 80 p 3

[Text] The transplantation of paddy rice is a task requiring great labor intensity in China. In order to mechanize rice transplanting, it is necessary to solve, as well, the factorization of the growing of rice seedlings and the standardization of rice seedlings. These problems have found preliminary solution in Hubei, where experiments have been successfully conducted in plant buildings combining the technologies of hydroponic growing of seedlings with the mechanized transplanting of medium seedlings.

The Hubei Provincial Grain Crop Institute used the facilities of the Wuhan Municipal Automation Institute to conduct experiments in "growing of seedlings in trays without soil, using liquid fertilizer to nurture and strengthen the seedlings with medium seedlings being machine transplanted to open fields." They successfully worked out a new technology for the nurturing of seedlings in fertilized water without soil, thereby creating the conditions for providing the quality of seedlings that could be machine transplanted. The improved seedling transplanting machine of the Hubei Provincial Agriculture Mechanization Institute also was quite successful in transplanting seedlings. The seedling transplanter revolves smoothly, planting seedlings in the fields evenly and symmetrically, earning good marks from the masses.

On the basis of these preliminary successes, growing of seedlings hydroponically at the mechanized seedling plant has been increased, for overall economic benefits in the conservation of labor, the conservation of seedling fields, reduction in waste, and increased labor productivity. Hubei Province intends large area demonstrations, promotion and further increases in the levels of farm technology and farm mechanization.

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CSO: 4007

HUBEI

BRIEFS

HUBEI SWINE PARASITE DISCOVERY--Wuhan, 17 Oct (XINHUA)--A veterinary scientist in Hubei Province, central China, has for the first time in China discovered two kinds of parasites of swine. One is a fluke in the small intestine (*echinostoma melis*), formerly believed to be found only in the mongoose and otter, and the other is a stomach nematode (*spirocerca lupi*), formerly believed to be limited to the dog, fox and wolf. The discovery was made by Zhang Shunxiang, deputy director of a research center of livestock breeding and veterinary sciences in Hubei Province, who examined more than 10,000 parasites collected between 1978 and 1980. Zhang Shunxiang, 48, is a 1956 graduate of the Beijing Agricultural University. His previous discovery was a new parasite in the large intestine of sheep. [Text] [Beijing XINUUA in English 0720 GMT 17 Oct 80 OW]

CSO: 4020

BRIEFS

JIANGXI AGRICULTURAL COURSE--The first study course for Jiangxi provincial agricultural cadres began on 6 October. Liu Junxiu, secretary of the Jiangxi Provincial CCP Committee, (Liu Zhongzhou), deputy secretary of the provincial CCP committee, Zhang Guozhen, vice governor of Jiangxi, and other responsible comrades attended the opening ceremony and spoke. Zhang Guozhen said: At present, the party Central Committee and the State Council attach great importance to training for cadres. We must cultivate more young and capable persons in order to speed up agricultural modernization. There is a total of 47 cadres attending the first course, including experienced leaders of the party organizations concerned. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 8 Oct 80 HK]

CSO: 4007

LIAONING

LIAONING ADOPTS MEASURES TO AID RURAL ENTERPRISES

Beijing RNEMIN RIBAO in Chinese 16 Aug 80 p 2

[Article from Xinhuashe: "Liaoning Opens All Sorts of Channels for Commune and Production Brigade Business Enterprises, Adopting Effective Measures and Coordinating Pertinent Policies"]

[Text] The Party Committee and People's Government of Liaoning Province recently convened a provincewide Commune and Production Brigade Business Enterprise Work Conference to decide conscientious implementation and coordination of pertinent official policies and to open various channels to enliven commune and brigade business enterprises so that rural villages may become prosperous in the shortest possible time. As a result of diligent discussion by the Commune and Brigade Business Enterprise Work Conference, the following pertinent policies and measures were clearly defined for the current development of commune and brigade business enterprises.

1) Active support to development of agricultural by-product processing industries by communes and brigades through the adaptation of methods to local situations. From now on, all agricultural by-products, forestry by-products, and native products suitable for processing by communes and brigades any place should be actively and gradually changed over toward processing by commune and brigade businesses for processing in a change from rural villages only selling raw materials but doing no processing of them. Active support should be given to communes and production brigades for the processing of commodity grain. From now on there should be no further new construction or extensions of grain processing plants in cities and towns. Grain processing plants established in rural village communes by the state should be operated in a planned way either as joint state-commune enterprises or handed over to the communes and brigades for operation. Following the North China Agricultural Conference, all grain processing plant sites taken over from communes and brigades by grain departments must be returned to communes and brigades for operation should the communes and brigades so demand. Once communes and brigades in forestlands have fulfilled state procurement plans for lumber, communes and brigades have the right to retain and use in a sensible way all the material removed from the outside of logs, all branches, and surplus forestry

materials, which they may sell as they see fit within the province, or use to operate lumber processing plants, or plants for the manufacture of articles made from wood, or multi-purpose plants. The various wood products produced will be allowed to be sold in city markets or sold elsewhere. In silkworm processing too, support should be given to communes and brigades to do the work themselves. Henceforth, state operated plants may not, generally speaking, increase their silk reeling capacity, chiefly in order that commune and brigade silk reeling enterprises may develop.

Active support to be given commune and brigade construction engineering enterprises and to transportation and loading and unloading enterprises. When evaluation and approval by appropriate authorities has been given, and business permits issued, these enterprises are to be permitted to contract for jobs in capital construction and maintenance and repair in cities. Both year round and seasonal commune and brigade operated transportation units and loading and unloading units may contract for transportation and loading and unloading work in cities.

2) Use of flexible methods to solve some conflicts in the implementation of policies. Coastal areas complain that the tax rate on sun-dried salt is too high. By the time they have deduced costs, they lose money. Consequently commune and brigade salt industries cannot grow and the state collects no revenues, which benefits neither the state nor the people. But tax rates are determined by the state, and local jurisdictions have no authority to change them. Xingcheng County found a flexible way of handling this situation. Using a state regulation whereby poor communes and brigades may reduce or be exempt from payment of taxes, they took 70 percent of the tax monies paid to subsidize the salt sites, with the result that commune and brigade operated salt sites thrived, state tax revenues increased, and both parties were satisfied. Flexible methods may be applied to similar problems to arrive at sensible solutions that help the development of commune and brigade business enterprises.

3) Commune and brigade enterprises must make full use of the regulatory role of markets, and benefiting from the characteristic that "small boats can turn around easily, communes and brigades should adjust the orientation of their production at any given time.

4) Vigorously advocate and actively support joint city-countryside and industry-agriculture enterprises.

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LIAONING

BRIEFS

AGRICULTURE RESEARCH GROUP--The 30-member agricultural research group composed of experts and professors concluded its 1-month-long research in Liaoning Province's sandy and arid western areas. On 11 October the group briefed leading comrades of the provincial CCP committee and the provincial People's Government on methods used to prevent soil erosion. [Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 11 Oct 80 SK]

VEGETABLE SUPPLIES--The Shenyang Municipal People's Government held a mobilization rally on harvesting and supply autumn vegetables on 13 October. The rally noted that owing to natural adversities, the output of vegetables has declined in the municipality. In view of this, the municipal People's Government urged efforts to adopt flexible measures to harvest vegetables and put them on the market at a proper time so as to prevent rotting. [Shenyang Liaoning Provincial Service in Mandarin 2200 GMT 13 Oct 80 SK]

AUTUMN HARVEST--As of 8 October, Liaoning Province had harvested some 35 million mu of farm crops, which accounts for 72 percent of the total farming acreage under cultivation. Thus, the province has harvested over 1 million mu of land more than it did in 1979. Liaoning Province has already harvested cereal crops and minor oil-bearing crops. It is estimated that the autumn harvest will be completed by 20 October. [SK172330 Shenyang Liaoning Provincial Service in Mandarin 1100 GMT 16 Oct 80]

CSO: 4007

BRIEFS

NINGXIA CARP BREEDING--Yinchuan, 19 Oct (XINHUA)--Scientists at an aquatic experimental farm in Ningxia Hui Autonomous Region, northwest China, have begun breeding a rare species of colored Crucian carp found in four lakes in Xiji County. The lakes were formed by a strong earthquake in 1920. The fish, *Carassius Auratus Shijyius*, are highly decorative, ranging from pure white through yellow, red and purple to pure black. They grow quickly and can attain a weight of around 250 grams. The 4 lakes in Xiji County are estimated to contain about 10,000 Crucian carp. [Text] [Beijing XINHUA in English 0718 GMT 19 Oct 80 OW]

CSO: 4020

BRIEFS

AUTUMN SOWING PLANS--Recently the State Council approved Shanghai's 1980 autumn sowing plans to expand cotton by 200,000 mu and rape by 300,000 mu. This rational readjustment of Shanghai suburbs' cropping system will develop their superior features, allow the peasants to get rich early and benefit the state. This expansion of the planted areas will have three advantages: 1) It will benefit the wet-dry crop rotation by continuing to increase and considerably stabilizing the area's grain output. 2) It will benefit by raising the self-sufficiency level of the municipality's industrial needs for cotton and edible oil and reduce the expenditure of the state's foreign exchange. 3) It will benefit by increasing the collective income of the communes and brigades. According to calculations, the total income from 1 mu planted to cotton after wheat will be about 55 yuan more than from 1 mu triple cropped with grain. The total income from 1 mu of rape will be about 10 yuan more than from 1 mu planted with wheat. [Shanghai WEN HUI BAO in Chinese 24 Jul 80 p 1]

CSO: 4007

PREFERENTIAL TREATMENT IN GRAIN DISTRIBUTION DISCUSSED

Chengdu SICHUAN RIBAO in Chinese 6 Aug 80 pp 1-2

[Article by commentator: "Welfare Is an Official Policy That Must Be Handled Prudently. Third Discussion About Distribution of Welfare Grain on the Basis of Workpoints"]

[Excerpts] In the implementation of welfare measures for the distribution of welfare grain rations on the basis of workpoints, one principle must be adhered to, and that is that these measures must embody distribution in accordance with work done in order to arouse the enthusiasm of commune members and promote the development of production and, at the same time, households enjoying the five guarantees [childless and infirm persons who are guaranteed food, clothing, medical care, housing and burial expenses by the people's communes], families of martyrs and servicemen who lack able bodied workers, disabled military personnel, and households with many members few of whom are able to work must be given welfare and assured their basic needs for grain. These are two parts of an indivisible whole, and one positively cannot give attention to one while ignoring the other.

Some cadres and members of the masses presently have some misgivings about implementation of welfare measures that entail distribution of grain on the basis of workpoints, and these misgivings center on this matter of welfare. For example, some workers assigned to rural villages are fearful that their dependents "will have too few workpoints and thus will not be given sufficient food, which will increase their own economic burdens"; some are apprehensive that old people, children, and others who have lost their ability to work "will not have a basic grain ration and will starve to death"; still other households that have few able-bodied people who can work feel that to accept welfare is "not honorable," or that it is to eat "begrudged grain." One thing giving rise to these fears and apprehensions is lack of familiarity with and understanding of the actual method of welfare in the distribution of grain on the basis of workpoints. Another thing is that in the course of trying out these measures, some places decided on criteria for welfare grain rations that tended to be too low, so the welfare grain that people withdrew tended

to be too little, and the policy for welfare was not sufficiently well implemented. The first of these is a problem of ideological understanding, and the latter is a problem in actual work methodology. The experiences of test sites everywhere have demonstrated that if thorough and meticulous propaganda work is done to explain official policy and to properly resolve problems pertaining to welfare, these fears and apprehensions will be eradicated in the process. The significance of this is that the solution to the welfare grain problem is at the crux of the gradual promotion of these grain ration distribution measures.

If this important policy of welfare is to be made a reality, there have to be concrete methods to match. At the present time, test sites everywhere are giving universal attention to the following several points: First, in most circumstances in which grain rations are distributed according to work points, distribution of grain is best done according to deliveries of manure in order to preserve the original proportions. As regards the amount of welfare grain to be withdrawn, higher authority ought not arbitrarily decide proportions, but should base a decision on the actual requirements of different situations in production teams. Second is welfare criteria. Generosity should be set rationally on the basis of the level of grain production following the principle that the basic needs of households poor in able-bodied laborers should be guaranteed. Appropriate generosity not only does not hurt the welfare of those households with able-bodied workers, but it can also arouse the enthusiasm of more commune members. Third is determination of who should be recipients of welfare and their numbers. Generally speaking, use of year-end appraisal methods are not appropriate to this purpose. Instead, a means of calculation that is in accord with government policies and is convenient, and one that is founded on the establishment of a basic system that takes into account work done and manure provided as well as the grading of the work force should be used to decide. Fourth, no matter the actual method used, it must be practical in terms of the local situation. There can be no "single solution to all problems." The autonomy of production teams has to be respected, with decisions being reached only after full democratic discussion by commune members. Every echelon of leadership should give further study to the various concrete methods created by the masses at test sites, and constantly summarize experience so as to gradually bring about perfection.

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CSO: 4007

INVESTMENT BY COMMUNE MEMBERS ENCOURAGED

Chengdu SICHUAN RIBAO in Chinese 5 Aug 80 p 2

[Article by Tang Hongqian [0781 3163 3383] and Da Fengquan [6671 7364 0356]: "Commune Members Should Be Encouraged To Invest in Commune Businesses"]

[Text] Recently we encountered a moving example in a rural village of people voluntarily investing in commune and production brigade businesses. The instance occurred in a prosperous area of Xichong County, where a business enterprise integrating agriculture, industry and business carry out seed propagation, breeding of silkworms, reeling of silk and weaving of silk cloth in a continuous process, operating silkworm breeding farms, silk reeling plants, and silk weaving plants for the purpose. Despite investment by the state and by communes and brigades collectively, capital is still extremely lacking. A meeting of shareholders of the integrated business enterprise decided to accept investments by individual commune members, also stipulating that those investing at least 500 yuan could make arrangements for a commune member who met conditions to become a worker. Within a few days, 426 commune members had registered their names, and money paid for shares amounted to 213,000 yuan. Finally, it was agreed that 105 commune members could invest in shares. This kind of example demonstrates that among the farmers there exists an extremely great enthusiasm for socialism and an untapped capital potential. All we need do is have confidence in the masses and in the correctness of policy, linking together investment by commune members with their individual material welfare, and then it will be possible to raise funds that lie idle in the hands of commune members in order to quicken the pace of the modernization of agriculture in Sichuan Province.

Nevertheless, some comrades are opposed to commune member investments in commune and brigade enterprises, feeling that collective businesses operated by communes and brigades should be supported by the state and through commune and brigade investments. If commune members are allowed to invest, the businesses then become "joint public-private enterprises," thereby changing the system of collective ownership and the socialist orientation of the businesses. Division of dividends on invested shares to commune members smacks of "exploitation." We feel this view will not

hold water. Will commune members' investing capital for shares in commune and brigade business enterprises (with enterprises gradually returning the investment in shares depending on how the businesses go), and becoming workers in the plants really change the nature of the enterprise? No, because once the communes and brigades have absorbed the capital invested by commune members, the means of production will still be collectively owned by the working people. The production goals are still the creation of material prosperity for the collective and for society, and the satisfaction of the people's normal material and cultural needs. The output of commune and production brigade business enterprises will also continue to be guided by the state plans. Commune members who invest capital in shares and become workers will still be workers. There will be no change in any of these things. However, the capital invested by commune members in commune and brigade enterprises will undergo a qualitative transformation becoming collective capital owned by the collective, and therefore it cannot change the nature of the collective ownership of commune and brigade enterprises nor their orientation of development.

Periodic payments of certain dividends to commune members who have invested capital in shares according to the amount of their investment following various deductions depending on how well the enterprise was run and how much profit it made is no different from payment by banks of certain interest on the savings accounts of commune members, which is certainly not "exploitation." This is because the dividends paid commune members on their investments derive from the net profits created by the employees of the enterprises, and are a type of distribution of the income of the enterprises. Payment of dividends for investments is a way of providing rewards and encouragement to commune members to practice frugality and thrift, and to actively invest to support the modernization of agriculture. If one claims that payment of dividends to commune investors is a form of "exploitation," then is it not also exploitation when some of the profits obtained from the operation of commune and brigade businesses are returned to production teams where they are distributed among members? Today the working people are the masters of the country; the welfare of commune members and the welfare of the collective are as one. Commune members are both owners of the collective economy and workers in the collective economy, so distribution of a certain amount of profits to shareholders is not exploitation.

Comrade Mao Zedong constantly attached importance to the mobilization of the farmers to invest and develop production. In 1934, he said in "Our Economic Policy," "Reliance on the power of the masses to solve the problem of capital for economic reconstruction is currently still the only possible way." In 1956, he said further, "Properly and not excessively, and only after full arousal of the consciousness of commune members, and under conditions that safeguard the poor commune members, arousing commune members to invest in order to solve the difficulty of a shortage of production capital in cooperatives is entirely possible."

("The High Tide of Socialism in Chinese Rural Villages," Vol 2, p 517, CCP Central Committee Office.) Though the farmers in our province are still not wealthy today, still, in view of the large population, many a little makes a mickle. Even if a commune member's investment is very little, when added all together, the investment funds become impressive. We should review the aforementioned teachings of Comrade Mao Zedong to get a proper understanding of this problem, and to encourage commune members to invest in shares to promote the development of commune and brigade business enterprises.

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MORE TRADES NEEDED TO IMPROVE RURAL ECONOMY

Chengdu SICHUAN RIBAO in Chinese 4 Jul 80 p 1

[Article by Xinhuashe correspondents Liu Bang [2692 2735] and Li Shaozhong [2621 4801 0022]: "The Party Committee of Wanjiang Prefecture Proposes Smooth Flow of Goods on Finance and Trade Front With Broadening of Flow Channels for Commodities To Make Rural Village Economies Lively"]

[Excerpt] The Party Committee of Wanjiang Prefecture in Sichuan Province recently proposed broadening of the channels for the flow of commodities on the finance and trade front and a reduction of intervening links for the smooth flow of goods and further enlivening of rural economies.

Wanjiang Prefecture is situated in the fertile weir irrigation area of the Du River on the western Sichuan Plain. Since the smashing of the "gang of four," agriculture here has had continuous increases in output and in income; the levels of distributions to commune members have risen strikingly, and rural markets have been thriving and prosperous. The proportion of goods produced in rural villages has particularly increased with time. Last year, the more than 27,000 production teams in the prefecture had a total income of 358.1 million yuan from the sale of agricultural by-products, amounting to 38 percent of total output value and representing a 25.6 percent increase over the previous year. Almost all of the 330 million yuan worth of goods from commune and brigade business enterprises was commodity production, an increase of 38.8 percent over the previous year. Output value of commune members' home sideline industries amounted to more than 400 million yuan of which the proportion that was commodity production was also quite large. But along with a liveliness in commodity production appeared many new problems in the marketplace. Agricultural by-products such as the farmers' fat hogs and medicinal materials either could not be sold or the sale price was unreasonably low. Industrial goods needed by farmers such as chemical fertilizers and iron and wooden implements were in a situation in which supply could not keep up with demand. These abnormal states of affairs showed that current channels for the circulation of commodities are not sufficiently unimpeded, and that the commercial system is not entirely rational, which is not helpful to the further prosperity and development of the rural economy. Last year, the farmers in Guan County had on hand medicinal

materials valued at around 400,000 yuan that they were unable to sell. In another case, right at the March and April busy period of spring plowing, rural villages in Dayi County urgently needed more than 8000 tons of chemical fertilizers, more than 4000 plowshares, and more than 3000 harrows, which supply organizations had not brought in. People discussed the situation agitatedly, criticizing some industrial and commercial organizations for caring only about fulfilling their individual profit quotas, for being indifferent to the view that agriculture is the foundation, and for having lost the fine tradition of supporting agriculture. Some commercial units downgraded goods and tried to drive down prices to be paid when buying agricultural by-products, arbitrarily suspending purchases and refusing to buy. Sometimes they were keen to do business in goods that would have a quick turnover and on which profits would be large, while not actively doing business in items that would earn little money, or not actively stocking items that rural villages urgently needed.

The Party Committee of Wanjiang Prefecture took an extremely serious view of this problem and promptly moved to investigate, study, and propose solutions to it. The Prefecture Party Committee called upon rural village as well as pertinent commercial and supply and sales units to use every means at their disposal to open commercial supply and marketing channels, not only so that commodities produced by agriculture that were daily increasing would have markets to go to, but also so that the development of commodity production in rural villages would be further developed. In practical terms, this meant efforts in four different areas. One was that prices paid for the purchase of agricultural by-products would have to be reasonable, and that there could be no downgrading of quality of goods in order to drive down prices, or any refusal to purchase. Two, was proper arrangements for sending people to make purchases and making purchases. There should be no buying of just whatever amount happened to be available. Three, the number of channels should be increased, with communes and brigades themselves being allowed to handle commerce; and four was the need for reduction in the number of intervening links, and no setting up of layer after layer of chokepoints that impede the flow of commodities.

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TUNG OIL OUTPUT DROPS IN WANXIAN PREFECTURE

Chengdu SICHUAN RIBAO in Chinese 4 Jul 80 p 2

[Article: "How To Solve the Problem of a Decline in Tung Oil Output in Wanxian Prefecture"]

[Excerpt] In Wanxian Prefecture, the number 1 tung oil producing area in the country, more than 80 percent of all communes and production brigades cultivate tung trees. The counties of Wan, Yunyang, Kai, and Fengjie, which produce between 10 to 20 million jin of tung nuts annually, are tung oil production base counties for the entire country. During the early period following Liberation, the entire prefecture had more than 40 million tung trees. Later on, this number was increased to more than 120 million. For many years the tung oil of Wanxian Prefecture has played a great role in supporting foreign trade exports, in increasing the income of the people of mountain areas, and in promoting industrial and agricultural production. According to statistics from the departments concerned, during the 29-year period from 1950 to 1979, average annual state procurement of tung nuts from the entire prefecture amounted to 70.8 million jin, providing the state with more than 21 million jin of tung oil, which was 10 percent of the national output of tung oil. During the 25-year period from 1952 to 1976, exports of tung oil averaged 11.44 million jin annually, or about one-fourth of total national exports.

However, an overall look at the situation since Liberation shows that not only has development of tung oil in Wanxian Prefecture been slow, with wild fluctuations, but there has also been a trend toward decline. During the 1950's, tung oil developed very rapidly throughout the prefecture with the quality of state procurement averaging more than 80 million jin annually. In 1955, the year of highest output, it amounted to 118 million jin. After the 1960's, it declined to an average of 63 million jin annually, with the lowest amount being in 1960 and 1961 when the quantity purchased by the state amounted to only between 25 and 26 million jin. The years 1977 and 1978 saw a revival, but last year another large-scale decrease occurred, with only 25 million jin being purchased, 34.52 million jin less than the average quantity purchased annually since Liberation. Investigation shows the decline in

output of tung oil attributable to many reasons, including one-sided ideological understanding, problems with emphasis on grain while slighting tung, problems in lack of planning and scientific management, and problems in administration and a system. But most fundamental has been the existing economic policies pertaining to the production of tung oil, which are not able to preserve and arouse the enthusiasm of the farmers to develop tung oil.

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SICHUAN

BRIEFS

SPRING COCOON OUTPUT--Spring cocoon output in Sichuan Province has been very good. This spring more than 1.1 million trays were set out and 720,000 dan of spring cocoons harvested. Silkworm production in Sichuan has a history of more than 4,000 years. Production areas, which were located in more than 20 counties along the Fu, Min, Jialing, and Yangtze rivers before Liberation, have expanded into a total of 156 counties in Yibin, Chongqing, Leshan, and Wanxian prefectures. Output continues to increase in the old areas, while development of the new areas is rapid. At the present time, counties throughout the province with an annual output of 10,000 dan of cocoons number 35, and those with an annual output of 30,000 dan of cocoons number 15. Sichuan currently has 1.5 billion mulberry trees, and a great untapped potential for cocoon production still remains. [Text] [Hong Kong ZHONGGUO XINWEN in Chinese 23 Jul 80 p 3] 9432

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HANGZHOU SUFFERS VEGETABLE SHORTAGE

Hangzhou ZHEJIANG RIBAO in Chinese 29 Aug 80 p 1

[Text] Torrential rains and low temperatures have seriously damaged Hangzhou's vegetable bases, sharply reducing the daily supply of vegetables to the markets. Commercial units and agricultural units concerned in Hangzhou are now taking urgent steps to try to ameliorate the acute scarcity of vegetables.

The four fresh vegetable wholesale units of the Hangzhou Municipal Vegetable Company have sent out more than 50 vegetable buyers to various places inside and outside Zhejiang Province to make active purchases of vegetables. They have already made arrangements for the supply to markets during September of winter melons, red onions, fresh lotus roots, and potatoes amounting to more than 60,000 dan in all. More than 40 retail vegetable farms throughout the city have also acted to buy various kinds of vegetables and aquatic products from elsewhere.

Foodstuffs units have made a special allocation of 1 million jin of soybeans that had been purchased at negotiated prices. Some 800,000 jin of these were used to increase output of things made from soybeans, which will be offered to residents of the city at posted prices in September. The remaining 200,000 jin of soybeans will be used to produce about 1.3 million jin of bean sprouts.

Agricultural and commercial units in Hangzhou have made arrangements to send some late maturing varieties of vegetables to market ahead of time, properly increasing subsidization over and above listed price. Additionally, agricultural units concerned are striving to intensify field care, rush planting quick-growing leafy vegetables such as summer green vegetables and fresh greens.

Zhejiang Province has had a problem in the supply and marketing of vegetables for a long time. Every time there is ruinous weather, the conflict becomes especially prominent. It is hoped that the leadership authorities concerned will consider carefully and take rapid action to solve the "long standing and difficult" problem of vegetable supply being less than demand.

SWEEPING PANICLES WITH PALM FRONDS INCREASES RICE POLLINATION

Hangzhou ZHEJIANG RIBAO in Chinese 27 Aug 80 p 2

[Article by Gao Mouren [7559 6180 4457] and Gan Songlin [3927 2446 2651]]

[Text] The Ningbo Prefecture Agricultural Experimental Farm began experiments in the winter of 1978 on ways to increase the fruiting rate in the pollination of hybrid rice. Following year-round experiments over a period of 2 years in the breeding of hybrid rice seeds containing three genetic lines and in the purification and rejuvenation of lines, they managed to greatly increase the fruiting rate in the pollination of hybrid rice by using palm frond brooms to sweep the panicles. A single person can generally sweep from 4 to 5 mu between 0500 and 0900 or so, which is a great saving in labor over debudding. Average per mu yields from the more than 340 mu of spring seed propagation fields at the farm amounted to 170-180 jin this year, and both per unit yields and total output were double that of last year.

Why does using palm frond brooms to sweep the panicles so remarkably increase seed propagation and the output of breeding fields? Investigation and analysis has shown that the main reason is that sweeping of the panicle causes the male sterile panicle, which is in the shape of the clumped hairs at the end of a writing brush, to open up and become fluffy, thereby increasing more than threefold the area for pollination, and the degree of constriction of the neck of the sterile line is reduced from the original two-thirds to less than one-third, acting in the way that debudding does. The sweeping away of dew from the panicle and from the tops of the panicle leaves increases the temperature around the panicle, which can advance the time of blossoming from between 0.5 and 1 hour, thereby promoting a convergence in the time of blossoming of the male and female parent.

Proper selection of tools to be used in the sweeping of panicles must be made, and if sweeping is done too softly, the effect will not be very great. If, however, sweeping is too hard, the panicles may be easily damaged or broken off, and the incipient branches pulled out.

When sweeping the panicles, both hands should hold the broomhandle tightly in a position perpendicular to the surface of the rice plant, and the surface of the broom should form a right angle to the direction of the rows, and quick and vigorous sweeping of the necks of the full panicles should be done with a forward motion. An even pressure must be applied when sweeping, and the speed must be fast with no sweeping back and forth. Sweeping of the entire seed propagation field may be done two or three times in the course of panicle formation. Between 20 and 30 percent of the panicles being formed will be swept the first time, and between 50 and 60 percent will be swept the second time. Sweeping of the panicles is best done at the time leaves have been cut off or thoroughly slashed, and spraying has been done using 902. After the panicles have been swept, pollen should be promptly la fen [2139 4720] so as to further enhance pollinization opportunities to increase the pollination fruiting rate.

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LOANS TO COMMUNE MEMBERS EXPANDED

Hangzhou ZHEJIANG RIBAO in Chinese 30 Aug 80 p 2

[Article by Lan Feng [5695 7364] and He Yinnian [6378 5593 1628]]

[Text] Throughout this year, agricultural banks and credit cooperatives everywhere in Zhejiang Province have expanded the limits on the uses of loans to meet the needs of growth in sideline occupations by commune families. Loans have been granted to commune families to raise beef cattle, milk cows, milk goats, long-haired rabbits, as well as for duck raising and beekeeping. Loans have also been provided to commune members wanting to build new houses. They have also been granted for use as circulation capital by door-to-door peddlers selling knick-knacks, and to small groups of several commune members who have gone into partnership, combining their capital to operate processing industries together, to open food and beverage shops, to operate stands selling sundries, or to do small repairs, whenever these activities have been approved. As of early August, banks and credit cooperatives had handed out 17 million yuan in loans to commune members, a 70 percent increase over the same period last year. Of this total, 9.5 million yuan was used by commune families to develop sideline occupations, and 2.2 million yuan were loans for the construction of houses.

Banks and credit cooperatives everywhere have helped commune members do whatever it was that has needed doing, in accordance with the different situations in different places, and by adapting methods to local situations to make the most of special advantages offered. In mountain areas, for example, they actively supported development of the livestock industry. In Jinhua County, which is a production base for forage grass and livestock, banks and credit cooperatives issued loans amounting to 419,000 yuan during the first half of this year to more than 1,500 commune member households to raise cattle. This permitted them to increase their herds by 1,543 head. According to a survey of 198 households engaged in cattle raising, which was done by 4 credit cooperatives in Ruoyang, Waifan, Siqi, and Zaozhai, when 205 head of beef cattle were sold after having been fed for 5 months, net earnings after deduction

of expenses amounted to 21,318 yuan (not counting earnings from the manure in the cattle pens) for an average net profit per head of 104 yuan. Statistics from 8 mountain region communes in Shuanglong and Ruoyang show that after commune members had raised calves to maturity and sold them, they were able to repay a loan of 51,000 yuan on time and deposit savings of 95,700 yuan as well.

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AUTHOR: GUAN Qiliang [4619 0796 5328]

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TITLE: "Formation, Meiotic Stability and Karyotype Analysis of Octoploid Agrotriticum Hybrids"

SOURCE: Beijing ZUOWU XUEBAO [ACTA AGRONOMICA SINICA] in Chinese No 3, Sep 80 pp 129-137

TEXT OF ENGLISH ABSTRACT: 1. In this paper we have generalized a diagram for the formation of octoploid Agrotriticum hybrids according to our observation and analysis of chromosome behavior in pollen mother cells (PMC) of hybrids F_1 - F_4 of Triticum vulgare x Agropyron elongatum and the hybrid B_1F_1 after backcrossed with wheat for many years. That is to say the hybrid F_1 (BBEEFFAD) obtained from the hybridization of Triticum vulgare ($2n = 42$, karyotype as AABBDD) with Agropyron elongatum ($2n = 70$, karyotype as BBEEEEFFFF) has a partial ability to fructify without treatment of chromosome doubling. This is because the three genomes BBEEFF are basically homologous. After selfing and segregation for a considerably long time, an octoploid Agrotriticum hybrid which is intermediate and grass-like with karyotypes of BBEEFFAA and BBEEFFDD may be obtained. Moreover, the backcross of the hybrid F_1 or F_2 with the wheat for one to two

[Continuation of ZUOWU XUEBAO No 3, Sep 80 pp 129-137]

times can lead to genome recombination and form an octoploid Agrotriticum hybrid being intermediate with karyotypes as AABBDDDEE and AABBDDFF.

2. We have found that the meiosis of Agrotriticum hybrid ($2n = 56$) is still abnormal for more than 10 generations, even though it is fundamentally stable. The frequency of univalents in metaphase I (PMC) is somewhat higher, with that of Agrotriticum No 68 (13th generation) being 26.12 percent with 1-2 univalents and that of Agrotriticum No 333 (10th generation) being 60.04 percent with 1-3 univalents. Their percentages of fructification are about 95.54 percent and 65 percent respectively. In addition, we have also observed that the univalents in most of the cells at metaphase I may appear in the nuclei of daughter cells at later stages, but those of a few of the cells still remain within cytoplasm and are to form micronuclei. Eventually, most of the gametes formed are to be functional. However, the gametes with micronuclei and aneuploid gametes formed by random distribution of a few univalents may be poorly developed due to lack of competitive ability or abortion without participating in the fertilization. Objectively this plays a definite role in the maintenance of stability of the hybrid character.

3. By cytological observation of F_1 hybrids from several hybridized combinations in which octoploid Agrotriticum No 68 and No 693, etc., are crossed with each other and crossed with some different wheat varieties, it shows that Agrotriticum No 68 and No 693, etc., contain three genomes AABBDD being the same as wheat

[Continuation of ZUOWU XUEBAO No 3, Sep 80 pp 129-137]

and one genome EE or FF which is peculiar to Agropyron elongatum. Furthermore, their karyotypes have been analyzed.

4. The hybridization of octoploid Agrotriticum with wheat is easily successful. Some alien addition lines and substitution ones have been selected out from the progenies of these hybrids, and it would be possible to select out desirable varieties showing positive transgressions as well. Hence, it is worthwhile to apply this technique to wheat breeding.

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TITLE: "The Relation between Floret Development and Carbon-Nitrogen Metabolism in Winter Wheat"

SOURCE: Beijing ZUOWU XUEBAO [ACTA AGRONOMICA SINICA] in Chinese No 3, Sep 80 pp 139-146

TEXT OF ENGLISH ABSTRACT: A three-year study on the relationship between floret development and the application of nitrogen fertilizer in different levels was conducted for winter wheat from 1975 to 1978 in Beijing. The results obtained are summarized as follows:

1. The determining process of grain number in spikes of the wheat plant can be divided into three phases: (1) differentiation phase of floret; (2) polarized phase of floret development; (3) phase of flowering and seed-setting.

2. The total number of florets is relatively stable in the same region every year. The quantity and the time of application of nitrogen fertilizer in spring has no significant effect on the total number.
3. During the polarized phase of floret development (from the expansion of flag leaf to flowering), a large number of florets degenerated. A higher rate of formative florets depends upon an appropriate nitrogen content and a suitable carbon-nitrogen ratio in the wheat plants.
4. The normal morphological florets still degenerated partially in the phase of flowering and seed-setting. The percentage of fructification of these florets is determined by the sugar content in the plants and the sheaths through the expansion of flag leaf to the heading stage.
5. A unity of the rate of formative florets and the rate of fructification reached through the regulation of the sugar and nitrogen content in wheat plants might be the key to the increment in grain number per spike.

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TITLE: "Planting Density and Crop Yield--An Analysis of Quantitative Relationships between Yield and Density"

SOURCE: Beijing ZUOWU XUEBAO [ACTA AGRONOMICA SINICA] in Chinese No 3, Sep 80 pp 147-160

TEXT OF ENGLISH ABSTRACT: This paper deals with the mathematical models for determining the optimum densities $x_{opt.n}$ and $x_{opt.e}$ and the ranges at which the maximum Y_n and Y_e could be expected respectively. Let Y be population yield, i.e., final yield per unit area, and x be density, i.e. number of plants per unit area, so that $\frac{x}{Y}$ shows the average number of plants required for getting each unit yield, e.g., 1 kg. According to the quantitative changes of $\frac{x}{Y}$ on x , relationships between Y and x may be distinguished into three different models. 1. The arithmetical model--When x increases a unit, $\frac{x}{Y}$ will increase b units and b is an arithmetical constant. In many circumstances, the model may be applied to describe the relationship between biological yield and density of crops and the equation of yield/density can be expressed by $Y = \frac{x}{a + bx}$ (3.2)

where a is the minimum $\frac{x}{Y}$ as $x \rightarrow 0$ and b is the minimum area at which a unit yield is produced as $x \rightarrow \infty$.

[Continuation of ZUOWU XUEBAO No 3, Sep 80 pp 147-160]

2. The geometrical model--When x is increased by arithmetical series, $\frac{x}{Y}$ increases by geometrical series. It has been found that the relationship between economic yield and density of corn, soybean and other crops belongs to the model and the equation of yield/density can be expressed by $Y = \alpha x e^{-bx}$ (4.2) where α is the maximum yield per plant at $x \rightarrow 0$ and b is the optimum nutrient space per plant at which maximum yield of the population can be expected, and e is equal to 2.71828.

3. the mixed model--This model approaches the arithmetical model when planting density is lower, and it tends to the geometrical model gradually as the density becomes higher. In crops of rice, wheat, etc., the relationship between economic yield and density may be described by it and the equation is $Y = \frac{x}{a + bx^c}$ (5.2)

where the biological meaning of a is the same as that in (3.2), b is the difference between $\frac{x}{Y}$ as $x = 1$ and the minimum $\frac{x}{Y}$, and c is the regression coefficient of the logarithm of differences between $\frac{x}{Y}$ at different densities and the minimum $\frac{x}{Y}$ on the logarithm of densities. Two alternative equations may be provided for this model:

$$Y = \frac{x}{a + bx + cx^2} \quad (6.2) \quad \text{and} \quad Y = \frac{x}{(a + bx)^{1/c}} \quad (7.2)$$

Furthermore, the equation of seed weight sown (W) to x is $W = kx$ (10) and the equations of the production expenses accounted for yield (E) to x may be expressed by

[Continuation of ZUOWU XUEBAO No 3, Sep 80 pp 147-160]

$$E = (px)^{1/2} \quad (11.1) \quad \text{or} \quad E = \frac{x}{1 + mx} \quad (11.2)$$

Thus the equations of both net profit for yield (Y_n) and that for economical income (Y_e) to x are respectively

$$Y_n = Y - W \quad (12), \quad Y_e = Y - E \quad (13)$$

In general, $x_{opt.e}$ is less than $x_{opt.n}$ which, in turn, is less than x_{opt} (at which Y is maximum). Hence it is important to study the optimum density in any crop production in order to obtain a maximum Y_n or Y_e .

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TITLE: "A Statistical Analysis of the Yield of Winter Wheat in Luan Cheng Prefecture in Relation to the Local Climatic Conditions"

SOURCE: Beijing ZUOWU XUEBAO [ACTA AGRONOMICA SINICA] in Chinese No 3, Sep 80 pp 161-170

TEXT OF ENGLISH ABSTRACT: The relationship between the yield of winter wheat in Luan Cheng prefecture and the local agro-climatic conditions, including illumination, heat and precipitation, was studied statistically using such methods as Fisher's Regression Integral, Simple and Partial Correlation, Test of Hypothesis and the Multiple Linear Regression by Successive Elimination. Problems concerning the undulation of yields influenced by the variation of climatic conditions, the critical moment and degree of such influences, the cultural practices and managements of the local winter wheat crops, as well as the evaluation of the local agro-climatic resources were also discussed. It was hoped that such discussions would be helpful to the realization of higher and more consistent yields, the rational utilization of climatic resources and schemes of crop rotation.

[Continuation of ZUOWU XUEBAO No 3, Sep 80 pp 161-170]

As a result of these discussions and analysis, the following conclusions were reached:

- 1) The illumination and heat conditions of Luan Cheng in general could satisfy the need for growth and yield components of the wheat cultivar. Under the present cultural practices, the probability of an average yield of 500 kilo per mu was more than 70 percent.
- 2) Among the three factors influencing the yield of winter wheat crops of Luan Cheng, heat was the major one.
- 3) The total quantity of heat for wheat in Luan Cheng was sufficient, but its distribution during different growth stages was not completely suitable to the physiological requirements of the wheat crop, which could be found in the following three stages:
 - a. The stage before and during the overwintering period. The values of the regression integral, partial regression coefficient, simple and partial correlation coefficient were all positive, indicating that the yields in years of relatively higher temperatures were higher than those in years of lower temperatures.
 - b. These values were negative in the period from late February to the middle of May, during the stages of differentiation of spikelets and florets, indicating that the yields in years of lower temperatures were higher than those in years of higher temperatures.
 - c. These values were positive again in the period from the middle of May to

[Continuation of ZHONGGUO XUEBAO No 3, Sep 80 pp 161-170]

early June during the stages from filling to maturity.

4) According to the data and analysis of this study, it was pointed out that there was improper handling in the irrigation practices in Luan Cheng prefecture.

5) The problem of hot and dry winds did exist in the in the latter stage of the wheat plant in Luan Cheng prefecture, but it was of little importance as compared with the mountainous or rolling regions and the unirrigated dry land nearby.

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TITLE: "A Preliminary Study on the Variation of the Date of Heading in Spring Wheat Crosses"

SOURCE: Beijing, ZHONGGUO XUEBAO [ACTA AGRONOMICA SINICA] in Chinese No 3, Sep 80 pp 171-178

TEXT OF ENGLISH ABSTRACT: Date of heading was used as an index in the study of the heredity of the earliness of spring wheat. The results indicated that there was a close relationship between hybrid F_1 's, F_2 's and their respective parents. According to data of five years, the average correlation coefficient between the F_1 's and their parents was 0.8655, and that between the F_2 's and their parents was 0.8890, i.e., both generations were highly correlated with their parents. The regression coefficient was highly significant, too.

The value of heritability (h^2) in a broad sense calculated from 61 different crosses in four years was comparatively high, ranging from 64 to 85 percent, with an average of 61.2 percent. It was observed that the larger the difference

[Continuation of ZUOWU XUEBAO No 3, Sep 80 pp 171-178]

between the date of heading of the two parents of a cross, the higher was the heritability of this cross, and vice versa.

Observations on 324 crosses at five sites in four years indicated that the date of heading of F_1 's was complicated and manifold. Of the F_1 's of the 324 crosses studied, 53.5 percent were earlier than, or the same as, their early parents; 19.1 percent were intermediate between their early and late parents, whereas only 7 percent were later than, or as late as, their late parents. Thus, with the majority of the crosses, the F_1 's were earlier than, or as early as, their early parents, or earlier than the mid-parents, indicating that in the heredity of earliness, dominance is a fundamental tendency.

A continuous variation was observed in the date of heading of individuals in F_2 populations. Crosses inclining toward earliness were more than those inclining toward lateness. A few crosses were of normal distribution. According to an average from 54 crosses, 28.3 percent of the individuals of the F_2 population were earlier than the early parent, whereas only 14 percent were later than the late parent. In crosses with smaller differences in earliness between their two parents, there were more transgressive types and fewer intermediate types in the F_2 population, whereas in crosses with larger differences there were more intermediate types and the number of transgressive types was significantly small.

[Continuation of ZUOWU XUEBAO No 3, Sep 80 pp 171-178]

No significant difference was observed between reciprocal crosses in the date of heading of F_1 's or F_2 's. The values of heritability calculated were also similar between them respectively. Thus, it was suggested that the heritability of the date of heading of the common wheat seems not to be influenced by the cytoplasm.

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TITLE: "A Preliminary Study on the Genetic Variation of Heading Dates in Rice"

SOURCE: Beijing ZUOWU XUEBAO [ACTA AGRONOMICA SINICA] in Chinese No 3, Sep 80 pp 179-188

TEXT OF ENGLISH ABSTRACT: Observations on genetic variability of dates of heading of F_1 and F_2 generations of 384 single crosses among various ecological types in rice were made during the period of 1975-1978. The results were summarized as follows:

1. The first generation hybrids between different ecological types showed a great variability in their dates of heading. The F_1 crosses between distant ecological types showed outstanding transgression in the date of heading, whereas those between less-distant types expressed no transgression; in the latter case the numbers of the early and late crosses were nearly the same. A dominant effect on the date of heading was not apparent.

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2. The difference between dates of heading of the parents functioned regularly as a controlling factor for the transgressive as well as the non-transgressive earliness in the F_2 generation. The smaller the difference between dates of heading of the parents, the higher was the ratio of transgressive earliness, whereas a larger difference resulted in a lower ratio. This tendency held true for all the different types of crosses. This fact is very important in the choice of parents and making crosses for earliness.

3. The inheritance of the date of heading in rice appeared mainly to be controlled by polygenes; most of the F_2 populations gave more or less unimodal distribution. Some modifications were found in several crosses.

4. The heritability of the date of heading in rice was very high. Both the phenotypic and the genotypic coefficients of variability were small, and the difference between these two values was also small, indicating that the date of heading was mainly controlled by genotypes.

Meteorology

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TITLE: "The Mountain Effects on the Baroclinic Instability of the Long and Ultra-Long Waves in the Atmosphere"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 1, Mar 80 pp 1-15

TEXT OF ENGLISH ABSTRACT: The general rules concerning the mountain effects on the movement and development of the long and ultra-long waves are shown. When a westerly cold trough moves eastward over a mountain, if a_m/a_2 , the amplitude ratio of the topographic equivalent vorticity to its wind field vorticity, is relatively small, its amplitude damps in wind field and amplifies in temperature, and its wave speed in a wind field is faster than that in a temperature field. As it crosses the ridge of the mountain, its wind and temperature change inversely.

The physical process of the cyclo-genesis in the lee side is discussed in some detail. In the situation without the mountain, the mean wind field of the

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ultra-long waves generally moves westward, but the shear wind and temperature field move generally eastward. This is the reason why the ultra-long wave is not as baroclinically unstable as the long wave. It is deduced theoretically that the ridges of the ultra-long waves favor amplification between two topographic ridges of the same scale, and this deduction is consistent with the geographic distribution of the observed frequency of the blocking ridges.

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TITLE: "An Annulus Experimental Simulation of the Influence of the Qinghai-Tibetan Plateau on the Wind Field over Its Adjacent Regions in Winter"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 1, Mar 80 pp 16-26

TEXT OF ENGLISH ABSTRACT: In this paper the winter circulation over the Tibetan Plateau and its adjacent regions is simulated in a rotating annulus. The main results are as follows:

In winter the formation and intensity of the major trough over eastern Asia is not only related to the Continent-Ocean distribution and the dynamical role of the Plateau, but also to the thermodynamic effect of the Plateau which is also very important. The atmosphere over the Plateau and its adjacent regions is a cold source in winter. The meridional vertical circulation to the south and

[Continuation of QIXIANG XUEBAO No 1, Mar 80 pp 16-26]

South of the Plateau is directly related to the cooling effect over it. In addition, we find that a cooling model plateau may give rise to minor troughs moving eastward on the southern branch current to the south of the Plateau.

By comparing the experimental results of a nonheating and noncooling model plateau, a cooling model plateau and a partly heating model plateau, some dynamic and thermodynamic roles of the Plateau are revealed.

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TITLE: "Some Problems Concerning Initialization and Choice of Parameters in Numerical Weather Prediction"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 1, Mar 80 pp 27-35

TEXT OF ENGLISH ABSTRACT: In this paper the causes of the inconsistencies between the initial data and the prognostic model are discussed. One of the preliminary conclusions reached is that the inconsistencies are, in many cases, primarily caused by the disagreement between the assumptions (or treatments) made in the model and the observations taken as initial values. A scheme for initialization, constrained to total energy conservation and non-divergence of the whole air column, is proposed. Finally, a scheme for the choice of certain parameters, subject to the global integral constraint

$$\int_{\Sigma} \int_0^{P_0} \left(uF_u + vF_v + \frac{dQ}{dt} \right) dA dp = 0$$

is suggested.

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TITLE: "A Test of Statistical Forecasting Scheme for Western Pacific Typhoon Tracks Using Numerical Forecasting Results as Predictors"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 1, Mar 80 pp 36-43

TEXT OF ENGLISH ABSTRACT: The multiple linear regression equations derived by the MOP technique were tested for forecasting western Pacific typhoon tracks. Numerically predicted 500 mb geopotential height at 27 grid points to the north of the typhoon and parameters showing the state of the typhoon were selected as predictors. Two kinds of regression equations derived with different predictands were described. In the first kind, the predictands were the displacement of the typhoon at intervals of 12 hours. In the second kind, the predictands were the corrected amount of the displacement error of the typhoon numerically predicted. However there were only 84 statistical samples which might have some influence on the forecasting stability of the scheme.

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TITLE: "The Basic Dynamic Equations and the Main Properties of the Saturated Moist Air"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 1, Mar 80 pp 44-50

TEXT OF ENGLISH ABSTRACT: By use of the so-called generalized temperature of saturated moist air, a characteristic quantity representing the enthalpy of the air and a set of dynamic equations are derived. Based on these, the concept of the moist-balanced wind (or moist geostrophic wind) and that of pseudoequivalent temperature wind (or moist thermal wind) are suggested. Finally, some fundamental behaviors of low-level jet streams are studied.

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TITLE: "The Spectral Measurement of the Solar Direct Radiation"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 1, Mar 80 pp 51-61

TEXT OF ENGLISH ABSTRACT: By means of a thermoelectric Actinometer mounted with eight colored glass filters, the spectral intensities of the solar directed radiation were measured in 10 stations, distributed in 7 different regions of China, for various periods of time during 1975-1978. Based on 2698 series of data obtained from the observations, the effects of the solar elevation, season, geographical latitude and altitude above sea level as well as aerosol and water vapor on the solar spectral radiation are analyzed. The relative fluxes of the solar spectral radiation in various spectral bands are tabulated with air mass, the atmospheric turbidity coefficient and absolute humidity at the surface as three physical parameters.

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TITLE: "Some Research on the Development of Hail Clouds"

SOURCE: Beijing QIXIANG XUEBAO [ACTA METEOROLOGICA SINICA] in Chinese No 1, Mar 80 pp 64-72

TEXT OF ENGLISH ABSTRACT: This article includes some partial works, including basic research on hail cloud physics and hail suppression conducted by us during the past eight years. This consists of the life history of the hail cloud cell, the combination of cloud and formation of hail cloud, relation between hail cloud and environmental conditions, classification of hail cloud physics, lightning observation and analysis of hail clouds, and some research on hail suppression.

The results of the important research listed above are briefly given in this paper.

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Plant Protection

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TITLE: "Studies on the Life Histories and Bionomics of Four Species of Green lacewings"

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese No 1, Mar 80 pp 1-8

TEXT OF ENGLISH ABSTRACT: In this paper the life histories and the predacious capacities of four species of green lacewings, Chrysopa phyllochroma Wesmael, C. septempunctata Wesmael, C. sinica Tjeder and C. formosa Brauer, are detailed. According to our observation, they have four generations each year in Shandong Province. Because the females have longer longevity and periods of oviposition and the phenomenon is laternate generations is very common, there is the probability that some of them appear over four generations. The green lacewings overwinter in the adult stage of the overwintering type, and the rest of the

[Continuation of ZHIWU BAOHU XUEBAO No 1, Mar 80 pp 1-8]

three species overwinter in propupas in cocoons.

All four of these species can prey on cotton aphids and eggs of cotton bollworms, and are important natural enemies of the two cotton insect pests in our province. Among them, C. phyllochroma Wesmael is the dominant species in wheat and cotton fields. Their natural population occurs in great numbers from the middle of June to the beginning of August in cotton fields. This is the proper time for biologically controlling "summer aphids" and the third generation of cotton bollworms.

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TITLE: "A Preliminary Study on the Long-Legged Walnut Weevil, Alcidodes sp."

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese No 1, Mar 80 pp 9-16

TEXT OF ENGLISH ABSTRACT: The long-legged walnut weevil, Alcidodes sp., is an important pest and causes serious damage to walnut fruits. Since 1975, biological observations and control tests have been conducted in Pingwu County of Sichuan Province. The results obtained during 1975-1977 are summarized as follows:

1. The completed life cycle of the weevil consists of one generation a year, and overwinters in the adult stage. After hibernation, the weevil becomes active in April and begins to injure the walnut fruits, buds, young shoots and petioles. Mating and oviposition take place in May, and the oviposition period is quite long, usually lasting until mid-August. Eggs are laid in fruits, usually a single egg in each fruit. After the end of the oviposition period,

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the overwintered adults die away in October. The first appearance of new adults is in mid-June. Hibernation takes place in November.

2. The weevil is a weak flier, and has a "death-feigning habit," heliotropism and protective coloration.

3. Control measures were tested effectively with a spray of spore suspension ($2-5 \times 10^8$ /ml) of Beauveria bassiana, or 50 percent trithion, or 50 percent sumatrhion, or 82 percent phosphamiden, the three insecticides being applied at a dilution of 1:1000. The proper time for control is suggested at the peak of the appearance of the overwintered weevil, or of the egg-hatching period.

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TITLE: "A Preliminary Study of the Bionomics of Citrus Red Mite, Panonychus citri McGregor"

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese
No 1, Mar 80 pp 17-26

TEXT OF ENGLISH ABSTRACT: Panonychus citri McGregor is an important citrus pest of Sichuan. The mites usually begin to feed in early March. Their injury is most serious from mid-March to April. Several peaks of population often appear in spring and autumn. The first peak of population in spring occurs mainly under the following conditions:

The initial population of hibernating mites is higher;

The temperature in March-April is higher than usual, the highest temperature being 25°C on an average every week;

The sunlight and relative humidity are appropriate;

The natural enemies are lower in population;

[Continuation of ZHIWU BAOHU XUEBAO No 1, Mar 80 pp 17-26]

The growth of the mites fits in with the elongating stage of the citrus top.

The comprehensive influences of the ecological factors should be analyzed in the prediction of mites so that this pest can be controlled in time before the occurrence of the first peak of population in the spring.

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TITLE: "Studies on the White Rot (Coniothyrium diplodiella (Speg.) Sacc.) of Grapevines"

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese No 1, Mar 80 pp 27-34

TEXT OF ENGLISH ABSTRACT: Wounds and sufficient moisture are the essential conditions for the infection of white rot in vineyards. Infections will take place through injuries on any green portions of the vine. Under the environment of high humidity or in the guttation of leaves, water pores may become a path of infection. On clusters it is not necessary for wounds to be visible to the naked eye since natural wounds on pedicels are sufficient for the invasions.

Spore germination and invasion of white rot are closely bound up with moisture. A sufficient soil moisture due to rain or irrigation may play a role in

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promoting infection in two ways: (1) Condensation of water film induces the exomosis of nutrients, which stimulate spore germination and further invasion. (2) Due to the increasing of root pressure of the vine, the guttation of leaves is induced which gives a lift to the disease by affording it water, nutrients and a path for invasion.

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TITLE: "On the Biology of the Perfect Stage of Fusarium graminearum Schw."

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese
No 1, Mar 80 pp 35-42

TEXT OF ENGLISH ABSTRACT: Experimental results indicate that the temperature range for perithecial formation G. zeae ranges from 5-35°C, and for ascospore production ranges from 13 to 33°C, with an optimum at 25-28°C.

A proper moisture of the substrate is needed for ascospore formation and a diffused light is favorable for perithecial formation, especially at the initial stage of culture. When the culture starts in the dark, the perithecial production is retarded even if the culture is exposed to full light at the later stage of its development. Asci and ascospores, however, can be formed in the dark.

The ascospore discharge is to be controlled by moisture and precipitation. The number of ascospores released is greater at night (8 pm - 8 am) than in the day (8 am - 8 pm) and greater on rainy days than on clear days. The peak of

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spore discharge is from 10 pm to 8 am daily, and particularly from midnight to 6 am. Germination of ascospores occurs at 4-35°C, with an optimum at 25-28°C. The germination may amount to more than 90 percent within 4-8 hours at a temperature of 25-30°C. The ascospore can also germinate without free water, but the germination is markedly inhibited when the relative humidity is up to 81 percent, and it never occurs at less than 81 percent. Light and additional nutrition are unnecessary for ascospore germination.

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TITLE: "On the Rice Varietal Resistance of Xanthomonas oryzae in Guangdong"

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese
No 1, Mar 80 pp 43-48

TEXT OF ENGLISH ABSTRACT: Sixty isolates of different virulence were inoculated on 46 selected rice varieties with varying degrees of disease reaction. Results showed that the varietal resistance of rice to the leaf blight bacteria may generally be grouped into three categories, namely (1) broad spectrum, (2) non-broad spectrum, and (3) no resistance. Most of the foreign introduced cultivars or hybrids belong to the first group. They were moderately resistant or moderately susceptible. The varieties "Zhai-Ye-Qing No 8," "Fao-Bao-Ai No 22," "Zao-Jin-Fung No 5," "Qiu-Er-Ai," "Teng-Fu-Ai," "Tetep" and "Zenith" belong to

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the second group, while the high-yield varieties, such as "IR8," "Zhen-Zhu-Ai," "Quang-Liu-Ai No 4" and "Jing-Gong No 30" belong to the third group. To improve the breeding program for bacterial leaf blight resistance, the promised results will be obtained by using broad spectrum resistant varieties for source of resistance and strongly virulent strains of the leaf blight bacteria for resistance tests.

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TITLE: "Studies on the Techniques of Vacuum Fumigation with Methyl Bromide or Ethylene Oxide to Control Stored Product Pests and Plant or Animal Diseases"

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese No 1, Mar 80 pp 49-57

TEXT OF ENGLISH ABSTRACT: This paper deals with the measures of vacuum fumigation with methyl bromide or ethylene oxide to control stored product pests for plant seeds or animal diseases. In 1976-1979, a PCV-1000 procedure control vacuum fumigator was manufactured. It consisted of a 1 m³ circular steel chamber with equipment including pumping, heating and fumigant vaporizing, an operating case and the decomposition arrangement of the fumigant vapor (methyl bromide and ethylene oxide).

The test results indicated that the two-three hour fumigation with methyl bromide

[Continuation of ZHIWU BAOHU XUEBAO No 1, Mar 80 pp 49-57]

at a dose of 75-90 g per m³ and the three hour fumigation with ethylene oxide at a dose of 90-120 g per m³ which were at a pressure of 2-3 cm Hg absolute, were effective in controlling the insect samples wrapped in various ways, such as the larvae of the khapra beetle (Trogoderma granarium Verts, Trogoderma persicum Pic.), the adults of the rice bore beetle (Rhizopertha domica (F.)), red flour beetles (Tribolium castaneum (Hbst.)) and rusty grain beetles (Cryptolestes ferrugineus (Step.)), the rice weevils of all stages (Stophilus oryzae (L.)) and Chinese weevils (Callosobruchus chinensis (L.)), etc. The five hour fumigation with ethylene oxide at a dose of 500 g per m³ and the 12 hour fumigation at a dose of 300 g per m³, which were at a pressure of 2 cm Hg absolute, were effective in destroying the animal "Anthrax" germs. The five hour fumigation with the mixture of ethylene oxide at a dose of 40 g per m³ and methyl bromide at a dose of 160 g per m³ at a pressure of 2 cm Hg absolute was effective in controlling the germs of Fusarium wilt of cotton (Fusarium oxysporium (ATK)).

Afterwards, the residual fumigant was pumped out from the chamber and air-washings were twice carried out. The chamber was then opened. The atmosphere in the case was tested to ensure that methyl bromide or ethylene oxide residual quantities did not far exceed the maximum allowable concentration.

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The 5 percent NaOH alcohol solution used to decompose methyl bromide could produce a 96 percent effect, while water used to decompose ethylene oxide could produce 97-98 percent effect.

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TITLE: "Studies on the Methyl Bromide and Ethylene Oxide Decomposition Effects"

SOURCE: Tianjin ZHIWU BAOHU XUEBAO [ACTA PHYTOPHYLACTICA SINICA] in Chinese No 1, Mar 80 pp 58-65

TEXT OF ENGLISH ABSTRACT: This paper deals with the decomposition of methyl bromide with heating or salt alcohol solution, and that of ethylene oxide with water. The test results indicate that 5% NaOH alcohol solution used to decompose methyl bromide can produce 96 percent effects. When the temperature is over 700°C, methyl bromide may be decomposed to 99-100 percent. Water used to decompose ethylene oxide can produce 97-98 percent effects.

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